

The Iron Age

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A Review of the Hardware, Iron and Metal Trades.

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New Steel Lake Steamer Owego.

The steel steamer Owego, built for the Union Steamboat Company, of Buffalo, N. Y., under the personal supervision of W. Irving Babcock, of New York (formerly with John Roach & Sons, Chester, Pa.), from designs of George B. Mallory, of New York, is now nearing completion. She is intended for the Chicago trade, and will cost \$300,000. The Owego is a three-decked steamship, with hull of steel, propelled by a triple-expansion, inverted-vertical, direct-acting, jet-condensing, three-cylinder, compound engine. On the upper deck are houses for officers and crew, steering-gear, galley, storeroom, messrooms, and ice-houses. Metal inclosures surround the hatches, engines, boilers and companion-ways to the forecastle. At the bow and stern are solid bulwarks of steel, with open rails between. She is rigged as a fore-and-aft schooner, two masts with foresail, main-sail, fore-staysail, main-staysail, and fore-topmast staysail. One funnel or smoke-pipe

indicators are 28 inches, 42½ inches and 72 inches diameter, and 54 inches stroke. These engines are managed from the lower engine-room from the level of the shaft. Steam will be supplied by six boilers, each 11½ feet diameter. The fire-room runs fore and aft between the two sets of boilers which face each other; each boiler has two furnaces 39 inches in diameter, grate bars 6 feet long, making about 210 feet of grate surface. The boilers have Fox corrugated flues, the first on the lakes.

Driving Spikes Under Water.

It is often necessary to drive large spikes in water to the depth of 2, 3 and even 4 feet. Starting a spike by hand, and then attempting to drive it by means of a crow-bar, is an unmechanical proceeding, to say the least. According to a correspondent of the *Manufacturers' Gazette*, one of the neatest and also the best ways of effecting the desired object is to get a

ground iron ore, and is baked in an oven for 48 hours in an oxidizing flame, and 24 hours in a reducing flame. The German Government testing laboratory for building materials has reported favorably on this brick.

A New Liquid Fuel Burner.

We had occasion to remark some time ago that in nearly all liquid fuel burners which have thus far been brought forward prominently steam is used to spray the petroleum, the popular belief being that this is both the cheapest and most convenient method of accomplishing the object. The idea of using air as the spraying agent has unfortunately been lost sight of to a great extent and with it the attending benefits. An explanation why this should be the case may be found in the fact that the plan necessitates the use of an air compressor of some kind or of a fan. The working of these calls for an expenditure of a certain amount of power and entails also the

admitted through a pipe nearer the top, as shown, and causes the oil to rise in the vertical tube (Fig. 5) and pass along the horizontal branch. Issuing from the end of this it encounters a current of air passing along the outside of the oil tube, and is thoroughly broken up and mixed with it in passing through the nozzle. It will be noticed that the oil is carried forward both by direct pressure and by induction. By turning the small wheel, shown at the right in Fig. 5, the oil tubes, both horizontal and vertical, may be moved so as to bring the end of the horizontal branch either nearer to, or further away from, the nozzle. In the latter case, a greater volume of air is enabled to reach that point and the flow of oil is naturally diminished, and vice versa. A ready means of adjustment of oil and air supply is thus secured, enabling the attendant to control the fire to a nicety. In fact, from what we have seen of the work of the burners under two boilers in the repair shops of the Boston and Albany Railroad, at Springfield, there

pressed air enters the lower end of the governor cylinder and when the air pressure exceeds the figure for which the spring is set, the piston B is forced up, and, through its toothed rod, moves the sector A, which in turn closes the steam valve. The compressor pump hence stops working until the air pressure has fallen sufficiently to permit the return of the governor piston B to its initial position, which, of course, entails the reopening of the circular steam valve. The engravings clearly explain the arrangement.

So far as the economy of the system is concerned, as compared with steam atomizers, a few figures will prove interesting. It is perfectly evident that the steam passing through a steam atomizer is wholly lost, and on board ship the water would have to be replaced either by the use of special distilling apparatus or by sea water. Neither plan of making up for this constant drain on the water supply of a vessel can be regarded very favorably. Experience, moreover, has shown that the consumption of steam in

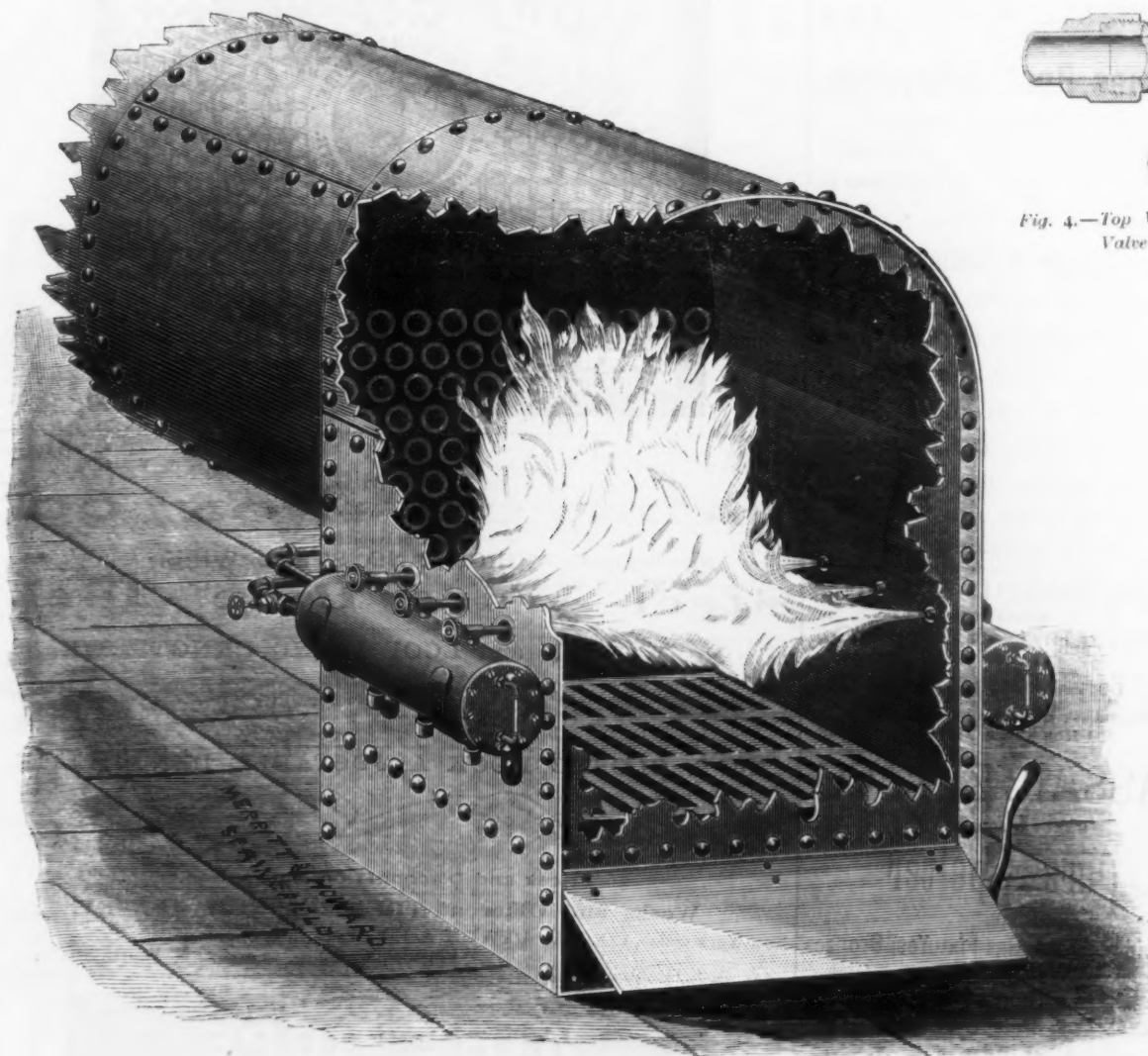


Fig. 1.—Boiler Furnace with Petroleum Burners.

(For Further Details see Page 17)

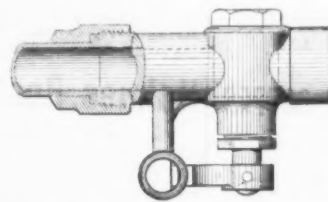


Fig. 4.—Top View, Showing Steam Valve Connection.

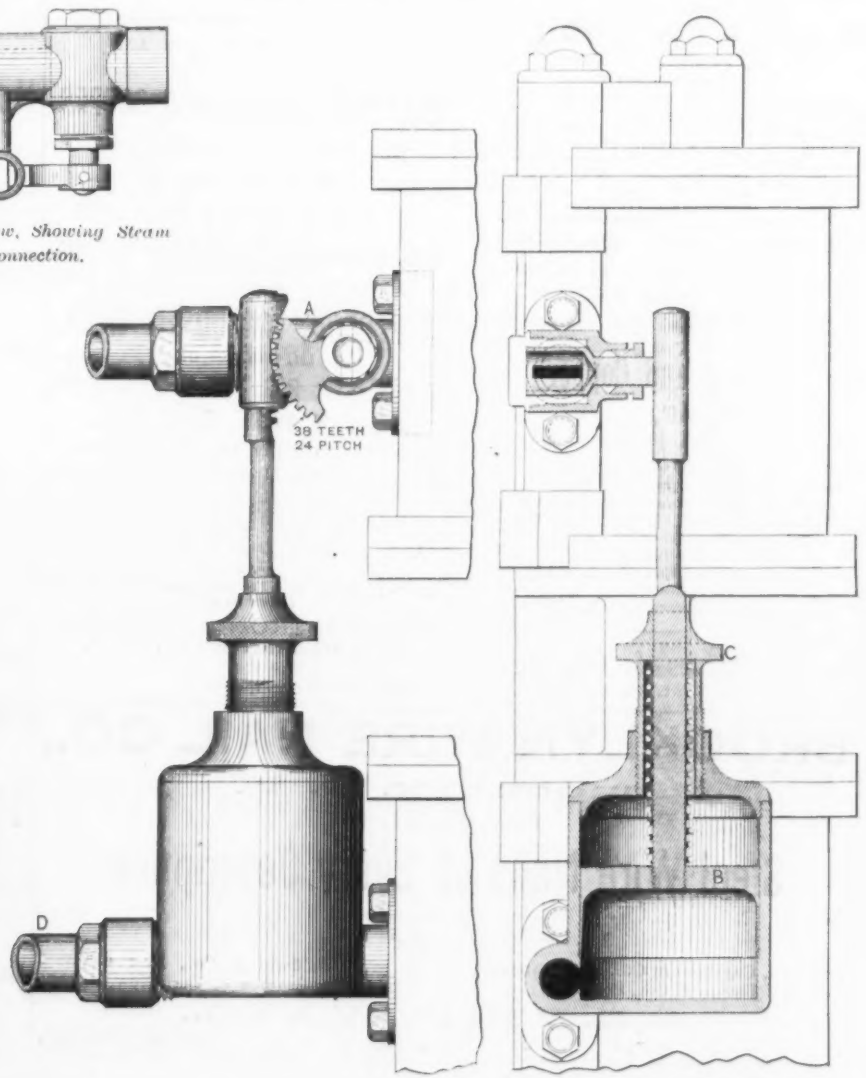


Fig. 2.—Elevation of Air Pressure Governor.

Fig. 3.—Vertical Section of Governor.

A NEW LIQUID FUEL BURNER AND ATTACHMENTS, MADE BY THE AERATED FUEL COMPANY, SPRINGFIELD, MASS.

is located about amidship. A donkey boiler is placed on the upper deck abaft funnel, and fitted to work cargo, winches, steering-gear and pumps. The upper deck is of steel with wood covering. The pilot-house is located above the captain's room. The interior of the pilot-house, captain's offices and messrooms are finished with mahogany, highly polished.

The second or main deck is of steel, unsheathed, and clear between end bulkheads, excepting machinery inclosures. The between decks are 8 feet 6 inches in height, well lighted with 40 side lights and fitted with five large double hatches and 10 gangways for handling cargo. The lower hold is subdivided by six water-tight bulkheads, forming four cargo holds, the machinery and boiler spaces and two collision spaces. The forward or collision bulkhead extends to the upper deck, forming a forecastle on the main deck, in which is placed the steam winch. Three of the cargo holds have a third or orlop deck. The ship is fitted with double bottom 3 feet deep, forming a ballast tank of about 800 tons capacity. She is designed to carry 2800 tons of cargo and fuel on 15 feet, 6 inches draft of water, and with this load to steam 14 knots or 16 miles per hour. The following are her principal dimensions: Length over all, 351 feet; between perpendiculars, 326 feet; depth molded at lowest point, 25 feet 6 inches; beam molded, 41 feet. The hull is entirely of steel, excepting a few iron parts of the internal inclosures about engines and boilers. The engines are to work under a boiler pressure of 160 pounds. The cyl-

piece of steam pipe of sufficient size to permit the spike to drop easily through it. Place one end of this pipe upon the spot where the spike is to be driven, drop the spike into the pipe, point first, and then follow it with an iron rod large enough to slide easily into the pipe. By using the iron rod as a battering ram, or like a churn drill, the spike can be easily and quickly driven home without splashing the person with mud and water. An improvement on this spike-driving rig may be made by getting a cast-iron ball, of two, four or six pounds weight, drilling a hole through the ball sufficient to receive the iron rod, also drilling another hole to receive a set-screw. By screwing the set-screw down upon the rod the ball can be held in any desired position. This ball gives extra weight to the driving rod, and, in fact, forms a kind of hammer whereby the spike can be more quickly driven home. It will not work well if you try to drive the spike by means of the rod and a sledge hammer. It is better, by all means, to rig up the ball above mentioned, which will do the work well and quickly.

Louis Jochum, of Ottweiler, near Saarbrücken, Germany, is introducing paving blocks, which he calls iron brick. It is made by mixing equal parts of finely ground red argillaceous slate and finely ground clay, and adding 5 per cent. of iron ore. This mixture is moistened with a solution of 25 per cent. sulphate of iron, to which fine iron ore is added until it shows a consistency of 38° Baumé. It is then formed in a press, dried, dipped once more in a nearly concentrated solution of sulphate of iron and finely

expense of wear and tear incident to the use of such apparatus. However, it is yet to be proved that the combined costs outweigh the advantages of the method. When we consider the fact alone that an intimate mixture of the combustible with the air supply is an essential requirement of thorough combustion, it is not difficult to understand that the air atomizer should receive special attention.

We take pleasure therefore in presenting illustrations of a new burner with attachments brought by the Aerated Fuel Company, of Springfield, Mass. The patents which the company control are those of Mr. J. H. Bullard, manager of the company, and they are being applied in a practical way to steam boiler furnaces, iron working and reclaiming furnaces in pulp mills, the work already accomplished being of a most encouraging character. The spraying medium in this burner, as may have been inferred, is air, a pressure of from six to ten pounds having been found to give every satisfaction. The construction of the device will be readily understood from Fig. 1 on this page, and the details, Figs. 5, 6 and 7, on page 17. Fig. 1 shows a tubular boiler fitted with the burners, six being used in this case, three on each side of the furnace. The burners, it will be observed, issue from an oil and air chamber, of which a cross section is given in Fig. 5. This chamber, or tank, is made of sufficient length to accommodate one or more burners, as may be required, and one end is fitted with a float and valve (Fig. 7, page 17), admitting oil as rapidly as it is burned, and thus maintaining a uniform level of oil. Compressed air is

is an absolute prevention of smoke, and no residuum of any kind. The furnaces when we saw them were as clean as though they had just been swept, though at the time they had been in uninterrupted use for some months. In Fig. 5 the burner is shown running through a tube fitted in the water leg of a boiler. In practice, however, the nozzle should be 1 inch back from the inside face instead of being flush, as shown. By the arrangement adopted the burner is always kept moderately cool, so much so that the hand can be placed upon it and held there for any length of time. This low temperature prevents the baking on of any products of the oil, and hence there is no possibility of clogging. Fig. 6 represents the nozzle end with the nozzle removed, and shows the spider which supports the oil tubes within the outer air pipe.

As we have already intimated, a comparatively low pressure of air is maintained, ranging between nine and ten pounds, in the case of the Boston and Albany Railroad shop boilers. To keep the pressure within a desired limit, Mr. Bullard has designed an ingenious form of regulator, shown in Figs. 2, 3 and 4. It consists essentially of a small cylinder attached to the air compressor, in this case a Westinghouse pump, and fitted with a spring-loaded piston, B. The spring may be adjusted by means of the small wheel C, to exert a known and desired pressure. The upper end of the piston-rod is in the form of a rack, gearing with a toothed sector, A (Fig. 2), and this sector, as will be understood from Fig. 4, governs the stem of a circular steam valve fitted in the steam-supply pipe. A pipe conveying the com-

such atomizers is appreciable, averaging something like one-tenth or one-twelfth of the total quantity of water evaporated. As against this figure, the atomizer which we illustrate has, according to Mr. Bullard, shown by test an indirect steam consumption in the compressor of not more than 3 per cent., ranging between that figure and about 1½ per cent. The importance of this point cannot be ignored. It must also be remembered that the use of steam in an atomizer detracts appreciably from the available heating effect of the oil. As to the evaporative power per pound of the oil, which is the crude petroleum from Lima, Ohio, Mr. Bullard claims 15.41 pounds of water from and at 212°. The best figure obtained with coal in the same boiler was 10.63 pounds of water. The temperature of the flue gases when using the oil was found to be from 30° to 35° above the temperature of steam at 65 pounds pressure, while with coal as fuel it was from 10° to 12° lower than this temperature. Mr. Bullard also gives us the following evaporative figures obtained with steam atomizers abroad:

	Steam pressure in boiler 65 pounds
Woolwich Arsenal	13.20
Forges et Chantier, Havre, France	13.20
Marseilles Navigation Company	14.10
Grati Tzaritsin R. R. Russia	12.25
Fraissinet Works, Marseilles	13.15

These figures, of course, are not exact measures of the comparative efficiencies of the systems, owing to the difference of locality. Still they are suggestive.

The reclaiming furnaces in the pulp mill of the Hudson River Water Power and

(Concluded on Page 17.)

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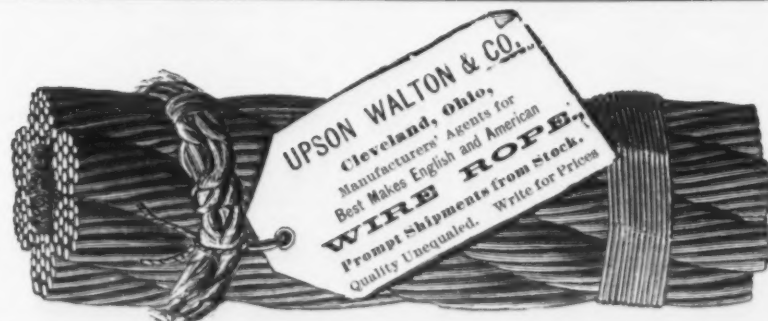
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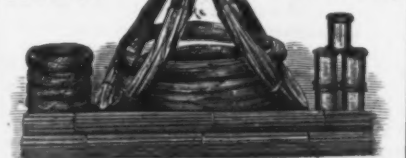
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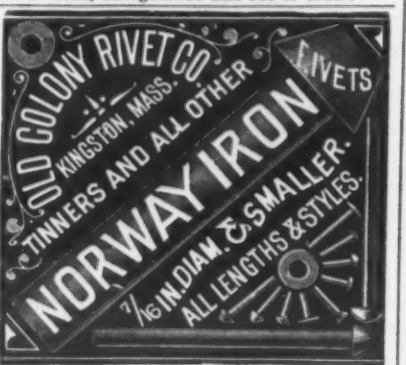
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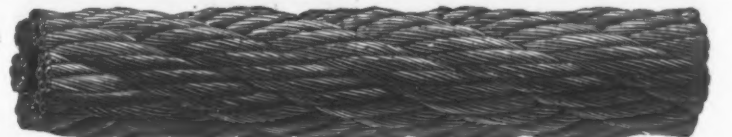
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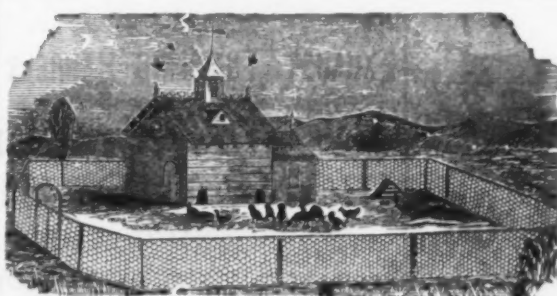
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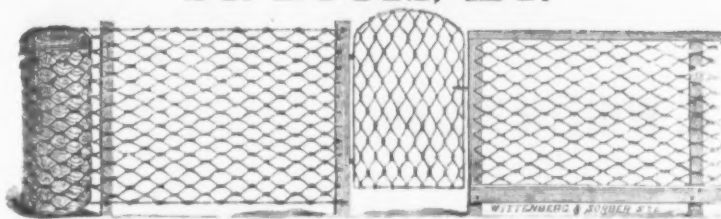


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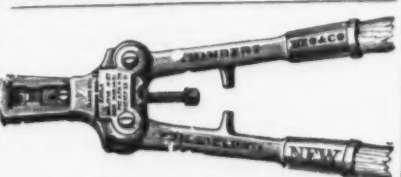
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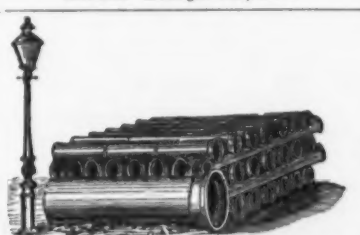
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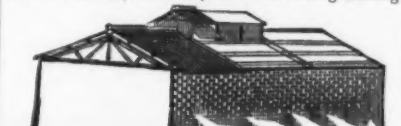
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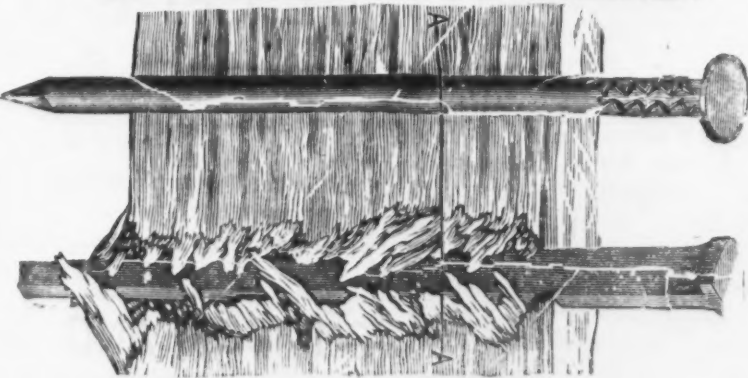
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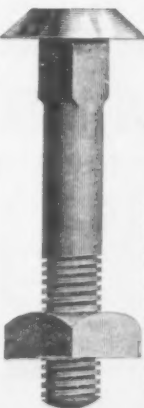
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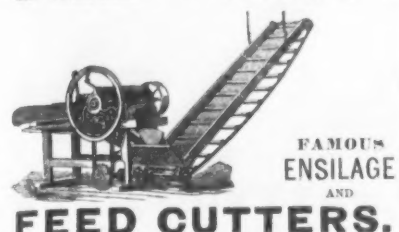


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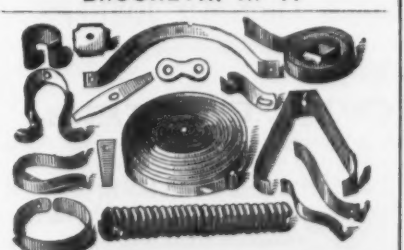


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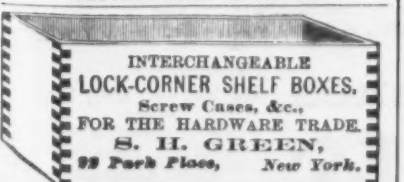


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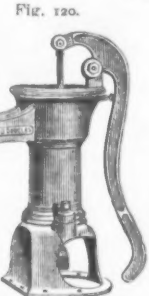


FIG. 120.

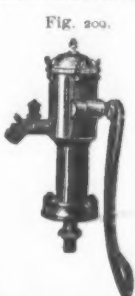


FIG. 209.



FIG. 70.

DOUGLAS' DIAPHRAGM PUMPS.

"LOUD PATENT."

A LARGE CAPACITY, AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

FIG. 381.



or wherever it is desired to raise a large quantity of water by hand power.

The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

Capacity from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced. Made either as shown in cut for Hose or for IRON Pipe Section underneath.

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Patent Rubber Buckets,
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&c., &c., &c.



FIG. 114.

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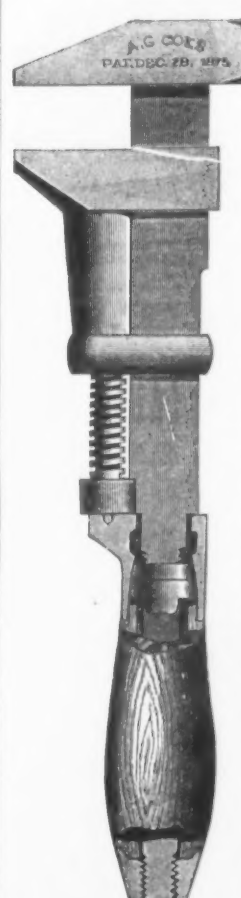
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for Watch, Clock, Piano and Cabinet Makers, Jewelers, Printers, Electro-
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MANUFACTURERS OF

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PATENT

SCREW WRENCHES,

The Strongest Wrench made, and the only successful re-enforced bar. The Ferrule is firmly secured in place by a nut screwed on the bar. Particular attention is called to the way in which the handle is made and fastened to the shank.

This Handle is made better and stronger than heretofore by using our new Cup Tip at the end which encloses the wood and keeps it from splitting. This is the only wrench which has the wood handle firmly secured and held together at each end, and it will stand more rough usage and last longer than any now made. It is not affected by heat, cold or moisture.

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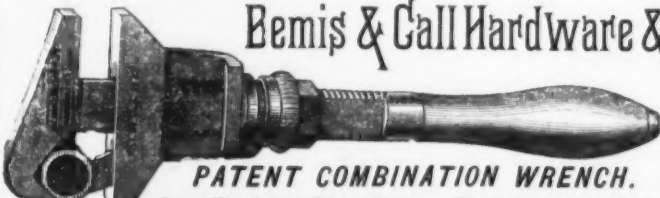
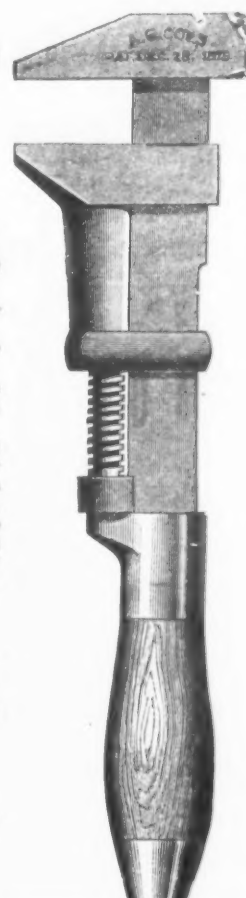
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The serrated jaw of the Wrench are interchangeable; that is, the same serrated plate may be used for either the stationary or sliding jaw, so that if one plate is broken another can be furnished adapted to either jaw with out express designation. The slides, nuts and various parts are also interchangeable, thus easily repairing the Wrench at very small expense, and with as perfect practicability for further use as when the Wrench was new.

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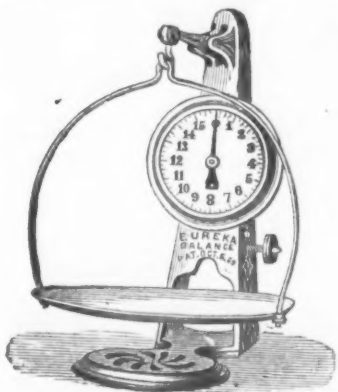
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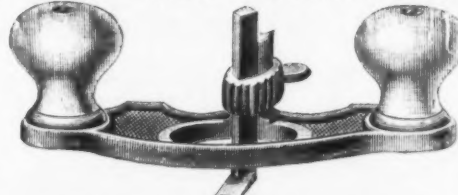
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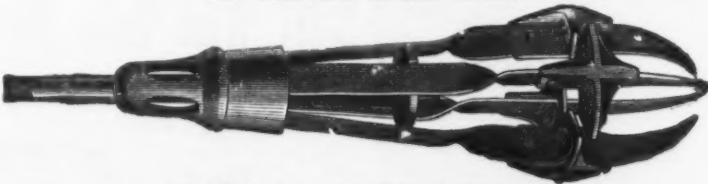


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This tool should be added to the kit of every skilled Carpenter, Cabinet Maker, Stair Builder, Pattern Maker or Wheelwright.
No. 71. Iron Stock, with Steel Bits (3/4 and 1/2 in.).....\$1.50

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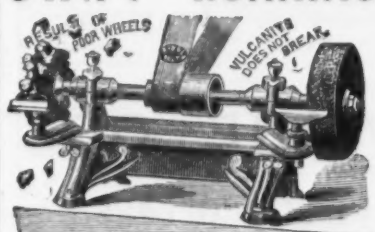


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A trial will convince you of this.

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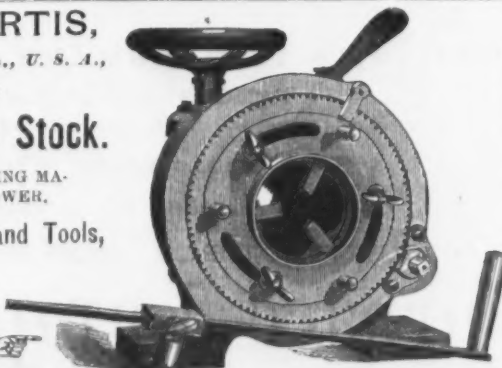
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Foreign Markets.

EQUIVALENTS.

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Franc, Peseta or Lira.....	10.3
Florin (Netherlands).....	40.2
Florin (Austria).....	35.9
Willems (P. Russia).....	\$1.08
Mirels (Brazil).....	\$4.9
Mark (Germany).....	25.8
Kilogram.....	220.5
Pical.....	134.

GREAT BRITAIN.

(From Our Regular Correspondent.)

LONDON, October 10, 1887.

THE SITUATION

is somewhat peculiar at the moment, owing to the end of the quarter having scarcely lost its influence, and the suspension of much business among the iron and hardware buyers until the course of prices shall have been determined at the quarterly meetings which will take place during the present week. It is very confidently anticipated that there will be advances in the quotations of all kinds of sheets, strips, and hoops—indeed, the makers are sufficiently well-employed to render them able to stand out for from 2/6 to 7/6 per ton more money. The demand for sheets appears to be principally for the use of the galvanizers, who are in all probability better engaged just now than they have been at any former period. The latest telegraphic advices from Australia published by your contemporary, the *London Ironmonger*, are very favorable; consequently, it is highly probable that the galvanized sheet producers will put up their figures another 10/ per ton, and try to get it. They announced an official rise of 10/ per ton three months ago, but it is a very open secret that during a great portion of the past quarter the higher figures were not only evaded, but sales were made by London agents at prices actually below the rates prevalent prior to the official change. During the past few weeks that state of affairs has been improved upon, and I fancy that something like a unanimous rise may be looked for, but the industry is one which is literally "cut all to pieces," and the manufacturers apparently have so little respect for themselves and each other that they proceed in a cut throat fashion, as regards selling prices, which is neither business-like nor safe. In crude irons there is really very little change to report, but the tone of the market has been hammered down by the bears at Glasgow, who are "sitting on" warrants savagely, with the very evident determination to bring them to lower levels, partly for their own speculative purposes in the open market and partly in order to hammer down the quotations of makers for their special brands. On the other hand, the bulls are encouraged by excellent advices from the continent of Europe speaking of great and cumulative activity in Germany and Belgium. They are also supported to day by the publication of the Board of Trade returns for the month of September, which are in many respects very favorable with regard to the exports of iron, steel, machinery and hardware. The general outlook may be deemed tolerably good, with a reasonable average amount of work assured up to the end of the year, but I cannot perceive any grounds for anticipating more than moderate activity and about present prices.

THE IRON MARKET

has been quiet, with an occasional tendency to dullness. Inquiries have been pretty numerous, but with the United States only a small percentage of business has resulted, because of the advance of outward freights. Then, as usually happens during the week prior to the quarterly meetings, inquiries have been more numerous than transactions, the business done being of a from hand-to-mouth character. On the Glasgow warrant market the "bulls" gained sufficient control of the market toward the close of last week to check the operations of the "bears," the closing price being 41/1. Two favorable features have ruled in respect of shipments and stocks—viz., the former, as compared with the figures for the corresponding period of last year, are nearly 2000 tons better, and the latter have only been slightly added to. There is a tolerably good demand for makers' brands at late rates. In Cleveland disappointment has been expressed that the returns of the make and stocks should again show a balance on the wrong side. The natural result of the publication of such returns was the depreciation of the Middleboro' market, and buyers have endeavored to take advantage of it. Some lots were transferred at rates below recent quotations, but makers expressed themselves determined not to sell below 33/6 @ 34/ for No. 3 G. M. B., according to delivery. On the West Coast and in Staffordshire there is practically nothing new to report, prices nominally ruling as before. In the Finished Iron departments a steady business is reported, although for the most part the parcels have been small. Late rates have also been well maintained. The heavier departments are reported to be less inanimate than they were a few weeks ago, and it is understood that for bridgework several new specifications are about to be issued. Sheets, both black and galvanized, have been quoted by some makers in advance of last week's prices. Such quotations have not been accepted, but a satisfactory business has been done at recently ruling values. In old rails and scrap there has been a quiet week. Holders have not been willing to sell below their late quotations, nor have buyers shown a disposition to increase their offers. Freights for pig iron from Glasgow to New York rule about 6/ per ton. To and from other ports the general tendency is toward a rise, particularly to the United States. Steel occupies a satisfactory position, taking one department with another, but the miscellaneous branches are neither so busy nor so remunerative as makers would like them to be, as the competition which exists in them continues to be severe. The orders for the sleepers required for the Bengal and Nagpur Railway have been placed with the Darlington Iron and Steel Company, Limited, and that for the fish plates for the same railway with the Tredgar Iron and Coal Company, Limited. The price obtained for the sleepers has not been made known, but that for the

fish plates is a fairly good one. Blooms are nominally quoted at £3. 17. 6, but beyond odd lots it is believed that but few transactions have been done in them during the week. Billets, both Siemens-Martin and basic, f.o.b. Glasgow or Middlesboro', are about the same, but business has been somewhat checked by the advance of freights to the United States. Steel rails are not in great request, nor have many new contracts been made during the week. The 12,000 tons required by the Bengal-Nagpur Railway Company have been placed with the Barrow Hematite Steel Company, Limited. The actual price obtained has not transpired, but it is understood to be a good one for the section, which is about 70 to 75 pounds. Taking this order as a test of the market, standard sections may be quoted as firm at from £4. 2/6 to £4. 5/ according to specification and the time of delivery. The Bombay, Baroda and Central India Company are asking for rails and accessories.

TIN PLATES.

In London there is little if any change to report. Some of the leading works are well off for orders but others are said to show some anxiety to book themselves a little ahead. I quote ordinary brands IC cokes, f.o.b. Liverpool, 13/3 @ 13/6. At Liverpool the tin-plate market is in a bad state. Fortunately there are not so many sellers as it was thought there would be, most makers being pretty well booked for a couple of months or so, and some for a more extended period. The chief items booked have been lines in special sizes and substances of Bessemer steel plates with coke finish and coke tin plates. There have been a few orders for Siemens steel plates with coke finish, and some of these included a proportion of ordinary sizes. Ordinary sizes in the general run of brands of coke tin plates are obtainable at 13/ IC, and some common brands a little less. Bessemer steel cokes, 13/ @ 13/1 1/2 IC, and Siemens steel cokes, 13/3 IC. The special sorts are, however, 3d and 6d more in each case. The demand for wasters is easier and prices not so steady, 12/6 @ 12/10 1/2 being about the ruling figure. Ordinary charcoalcoals are as low as 14/6 @ 15/ IC, and the next grade 15/3 @ 16/ IC, while blast charcoalcoals are 16/3 @ 17/6 IC. Though some heavy shipments ofterne plates are being made, there is little or no buying going on, as the season is about closing. The nominal figures still quoted are 12/ @ 14/ IC.

BRAZIL.

PARA, September 17, 1887.—*India Rubber*.—Our market has displayed a good deal of activity during the fortnight, there being a steady demand. Prices would have ruled higher but for the nervousness of exchange and the flatness of consuming centers, where some speculators want to break the market, while manufacturers do not feel disposed to operate beyond the strictly necessary. Prices are meanwhile 50 reis higher than they were early in the month. Fine may be quoted 2400 @ 2500, and Course 1500 @ 1600 reis. Receipts since the 1st inst., 340,000 kg.; shipped to New York, 437,000, and Liverpool, 104,000; to other countries and local consumption, 31,000; stock in first hands, 80,000 kg.; in second hands, 27,000. Exchange, 90 days sight on London, 23 1/2d.—O Commercial.

EAST INDIES.

SINGAPORE, October 18, 1887.—*Tin*.—Shipments from the Straits Settlements to America from the 1st to the 15th inst. amounted to 50 tons, against 200 last year; to England 1, 400, against 800; since January they amounted to 4,500, against 3700 to America, and to 10,400, against 9710, to England.—Giffen, Wood & Co. to Mr. Charles Nordhaus, per cable.

MANILA, October 3, 1887.—*Hemp*.—Under a most active demand current Hemp has advanced to 230. 4/5 per ton, f.o.b., at which more will be placed. Exchange—3/8 1/2; steamer freight to London, 23 1/2; to Liverpool, 23 1/8; total receipts at all ports since January 1, 3,000,000 bales; shipped to England, 111,000 per steam and 50,000 by rail; to the United States, 124,000; to other countries and local consumption, 31,000; loading for the United States, 56,000 bales.—Smith, Bell & Co.

PENANG, September 2, 1887.—*Tin*.—Receipts during the fortnight reached 9500 piculs. Europeans at the same time buying 5200 and Chinese 6500. The market opened at 37/6 1/2 and under an active Chinese demand rose to 37/7 1/2, whence it dropped to 37/10, closing at 37/30, after touching 37/40.—Schmidt, Kustermann & Co.

AUSTRALIA.

MELBOURNE, VICTORIA, September 22, 1887.—*Fence Wire*.—Has become quite active with sales at 28. 8/; consignees are holding off. Galvanized iron is also in good demand.—Argus.

SPAIN.

BILBAO, October 8, 1887.—*Metals*.—Shipments from Spain during the first seven months have been as under:

	1885.	1886.	1887.
	Tons.	Tons.	Tons.
Calamine.....	22,565	18,975	19,849
Pyrites.....	467,253	416,931	470,330
Iron Ore.....	3,810,293	2,590,669	3,159,967
Pyrites.....	15,415	15,718	16,409
Quicksilver.....	998	519	1,106
Lead.....	71,193	64,565	77,037
Total.....	2,909,115	3,081,017	3,744,617

The general increase will be observed. Iron Ore.—There has been a good demand during the week 7/ @ 7/4 for Campina and 6/7 @ 6/10 Rubios Superiores, without leading to large transactions. Vessels have been more plentiful, and 98,801 tons of Ore shipped. Total shipments to date, 3,422,967 tons, against 2,515,969 last year. Pig Iron.—Has been dull, only 241 tons being taken for abroad and 680 for the Peninsula.—Bilbao Maritimo y Comercial.

FRANCE.

PARIS, October 15, 1887.—*Metals*.—The market has been fairly active at an advance in everything but spelter. We quote at the close in francs 100 kg.: Copper.—Unil Bars, 105 @ 107.50; Ingots and Slabs, 111.25; Best Selected, 116.35, and Corcooro Ore, 107.50. Tin.—Banca, 286.25; Billiton, 282.50; Straits, 281.25, and English, 279.50. Lead, 30.25 @ 31, and Spelter, 42 @ 42.50. Iron continues weak in this city, at 12 francs for Beans, and 13 for Verchant Iron nominally. The Northern rolling mills have issued a circular fixing the price of No. 2 Merchant at 12.50 francs; it is the right figure may be sustained also for export which is awakening in that quarter. At Longwy the shipments of Pig Iron are considerable, so that production will be resumed, if not in full, approximately so. The Lorraine Ca' s'ores have received domestic orders for freight cars aggregating some 400 cars. Taken as a whole, matters in the iron branch look more cheerful than they did a week ago.—Moniteur des Interets Metalls.

GERMANY.

HAMBURG, October 15, 1887.—*Iron*.—Our Dortmund correspondent writes: The favorable position of iron has undergone no change. Pig Iron remains firm, there being no overproduction. The demand for Spiegel has remained as brisk as before, at 51 marks, 10 @ 12 1/2. Although Forge Pig has been in less active request here and at Siegen, it is steady, all makers being booked to January 1. This is equally applicable to Foundry Bessemer and Thomas. Rolling mills are as busy as ever, but have so far abstained from raising the price, although Pig is higher. The domestic demand for Finished is satisfactory, not as far export. There is soon to be a general German Finished Iron syndicate. Coarse Sheets, Boiler Plates

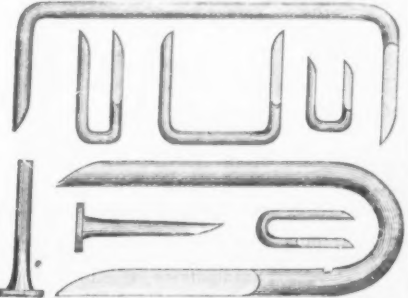
HALL & ELTON'S GERMAN SILVER.



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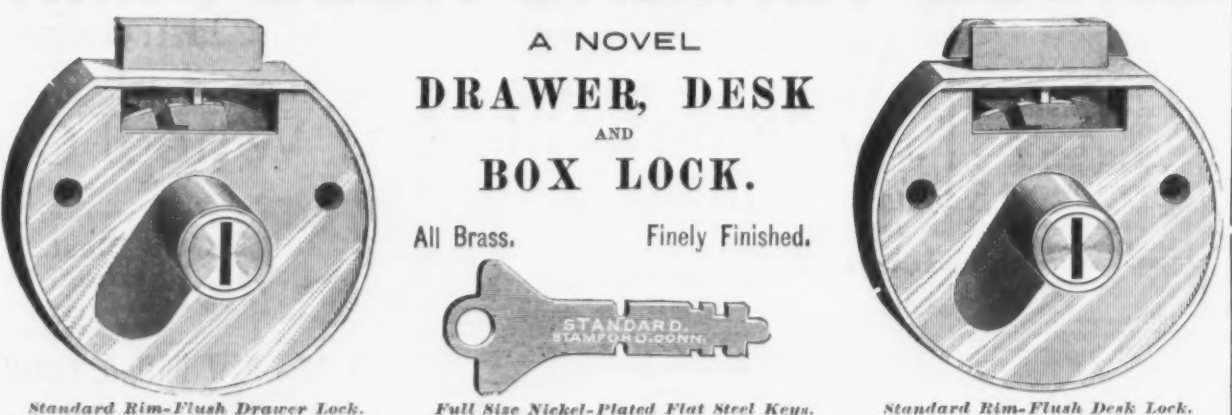
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especially, are doing well, not only here, but quite as much in Silesia. Both Thick and Thin Sheets are now sold for syndicate account at Berlin, causing an improvement of 2 marks $\frac{1}{2}$ ton at once. Tank Plates have been favored by the spirit tax law and the installment of spirit reservoirs. There is such a run on Thin Sheets that six weeks' time are demanded before new deliveries can be made; the price is 135 @ 140 marks at Siegen. The Wire branch reports no change. Car works received some few orders; machine shops and foundries are busier, but have been unable to get more money. None of them are busy to the full extent of their capacity. Brass manufacturers are about as fully engaged now as they were in September, and have secured trade for three months to come. In Upper Silesia Forge Pig is dull, the output all being sold ahead; Foundry Pig is selling with ease at 52 @ 55 marks $\frac{1}{2}$ ton. Rolling mills are fully booked four to five months in advance; the tendency of finished is upward. This may also be said of goods in the Wire branch. Makers decline selling for forward delivery. Metals.—Lead is quiet, but firm; Copper is quiet and dull; Spelter is wanted and rapidly improving in price. —Borsenbulletin.

BELGIUM.

BRUSSELS, October 15, 1887.—Iron.—If the improvement in iron has not been greater so far in 1887 in Belgium it is due to the extensive production going on in this country. Makers have improved their material, the processes of manufacture have been changed to such a degree that everybody tries to reduce general expenses by manufacturing as much as possible. Since 1882 the number of blast furnaces has been reduced by six, and the 14 in operation have produced 323,109 tons, while in 1882 the 23 then active produced 382,088 tons and no more. Meanwhile Beams are still the leading article. Our Government will require some 2000 freight cars for its railroad without delay. Meanwhile Luxembourg Forge Pig Iron is firm at 1.30, 1888 delivery. Sheets have been raised 5 francs $\frac{1}{2}$ ton, No. 2 now brings 14 francs $\frac{1}{2}$ ton, No. 3, 16, and No. 4, 18. Our government stands in need of 8000 tons of Steel Rails, and considerable interest will attach to the adjudication to come off. —Monteur Industriel.

AUSTRIA.

VIENNA, October 12, 1887.—Iron.—The fall trade has, after all, proved a partial failure, and the Bohemian rolling mills and Wire works are now underselling their competitors in Austria proper. Our market is dull, both in Pig and Finished, the only thing selling briskly enough is Old Rails. We quote: Pig Iron, 38 @ 46 florins $\frac{1}{2}$ ton; Merchant, 105 @ 125; Sheets, 140 @ 175, and Beams, 117 @ 127. Metals.—Have been tolerably lively and steady at 55.50 @ 60.50 florins $\frac{1}{2}$ 100 kg. for Copper; Lead may be quoted 18.25; Spelter, 30.50; Tin, 139 @ 139.50; Antimony, 40, and Quicksilver, 242. —Handel's Journal.

HOLLAND.

ROTTERDAM, October 12, 1887.—Tin.—The tendency has been a remarkably strong one, holders not pressing their stocks. We quote: Banca, on the spot, 65.50; for February delivery of Biliton 65.25 has been paid, and 65.50 $\frac{1}{2}$ refused for spot. —Koch & Vlierboom.

The Western Charcoal Pig Iron Association.

A short time since a meeting of a number of charcoal pig iron manufacturers was held at Cleveland, followed by a second meeting at Detroit last week. The following is the text of the constitution as at first proposed. We have bracketed those parts of the constitution as first proposed, which were eliminated at the Detroit meeting:

PROPOSED CONSTITUTION OF THE WESTERN CHARCOAL PIG IRON ASSOCIATION.

Article 1. Name.—This organization shall be known as The Western Charcoal Pig Iron Association.

Article 2. Objects.—The objects of this association shall be the facilitating of inter-communication between those engaged in the manufacture of charcoal pig iron, the collection of statistics, the dissemination of information, and, in general, the protection of its members and the advancement of their interests.

Article 3. Membership.—Any person, firm or company engaged in the manufacture of charcoal pig iron may become a member of this association upon agreeing to be bound by this constitution and the by-laws adopted in accordance with the same.

Article 4. Officers.—The officers of this association shall be a president, a vice-president for each district into which the association shall be divided, a secretary and treasurer, who shall perform the duties usually appertaining to these offices, and shall also serve as the Executive Board of the association, to act for the association in the intervals between its meetings.

Article 5. Prices.—[Entirely eliminated. The association may from time to time fix the minimum prices at which charcoal pig iron may be sold, and no member shall sell, nor authorize to be sold, any iron below the minimum so fixed, nor shall any rebates, drawbacks, &c., be allowed to the purchaser, or paid to him, that shall reduce the price below such minimum.]

Article 6. Reports of Sales and Violation of Prices Fixed.—To assist in maintaining any price fixed each member of the association shall make a report in writing not later than Monday of each week of all iron sold or contracts made during the previous week, giving in detail the amount of each sale, the grade and the price per ton, the terms of payment and the market in which sold—viz., Cleveland, Buffalo, Detroit, Chicago, St. Louis, Cincinnati, Pittsburgh and Louisville. These cities each to be considered distributing points, and to comprehend certain (to be) prescribed territory, taking in practically all the sections where charcoal iron may be used. This report shall be mailed to the secretary. As soon as the reports from all members are received the secretary shall publish in a confidential circular an itemized statement, giving in detail the amount of each sale, the price and terms, together with the market in which it is sold, but not the name of seller, and shall send the same to each member of the association. If any member of the association has reason to believe that any other member of the association has sold iron below the minimum price he shall at once notify the secretary, giving details of the sale, when the secretary shall be authorized and each member hereby authorizes him to examine his books and papers and ascertain the facts relative to such sales; the secretary shall also be authorized to make such other investigations in order to ascertain the facts as his judgment may dictate or as the association or Executive Board may direct. In case the secretary shall report that any member of the association has sold any iron at a less price than that fixed by the association, such a member shall be subject to such penalties as the association shall from time to time fix.

Article 7. Finances.—To meet the expenses of the association there shall be paid to the treasurer the sum of 1 cent for each

ton of iron made by each member of the association. At the close of each year the surplus over and above the expenses of the association, and a reasonable sum for immediate future expenses shall be divided among the members of the association *pro rata* to their contributions (provided that any member that has failed to maintain the association prices shall be debarré from any share in such distribution. Remittances shall be made during the first week in each month for the amount of assessment due on the production of the preceding month, and each furnace out of blast shall contribute \$5 per month during such period.

Article 8.—The annual meetings shall be held the second Wednesday in October. Regular meetings shall be held the second Wednesday of each month, unless otherwise ordered by the association at a regular meeting. The place of meeting shall be Detroit, unless otherwise ordered by the association.

Article 9. Expenses.—The secretary shall be paid his expenses when traveling on the business of the association and a salary of \$75 per month, payable monthly, which salary shall include office expenses.

Article 10. Amendments.—This constitution may be amended at any regular meeting of the association, notice of such amendment having been given in the call for said meeting.

At the Detroit meeting it was resolved that this constitution does not go into effect until a large proportion of furnaces in the West shall agree to same. It will be observed that, as the matter now stands, the proposed association contains no features aiming at an influence upon prices. The clauses relating to it were dropped, probably because it was well understood that in the absence of any restriction of output, the simple decreasing of a price would not bring about its general acceptance. As the matter now stands, the proposed association may prove a very useful channel for the collection and dissemination of useful information. Another meeting is to be held at Chicago on the 2d of November, at the Grand Pacific Hotel. In the meantime a circular letter is to be sent to all the furnaces in the Western territory, asking them to join the association on the basis proposed. It may be stated that a good deal more interest has thus far been shown in the matter than was generally supposed would follow its agitation when first broached.

Through one of its members (Hon. J. A. Chapleau, Secretary of State) the Dominion Government has at last defined its position in regard to the agitation now going on in connection with the commercial union movement. In the course of his remarks at a public banquet tendered to him at Montreal on his return from France, Mr. Chapleau, on behalf of the Government, said: "Commercial union is an idea which can never prevail in Canada. It is impossible in its present premature state. It started in the brain of a man who, having made a fortune in the States, sought notoriety by favoring this movement. It could not succeed, because it would destroy our Canadian industries and our nationality. It held out delusive hopes to the agriculturists, and, while I believe Canadians do not desire it, I feel satisfied Americans will not have it. There was nobody in the United States who would embrace the idea of commercial union unless they thought it meant political union as well. Such political union would wipe out forever all hopes and aspirations of the people for a Canadian nationality, and would deprive them of all the blessings they now enjoy."

Some recent German experiments have given interesting results as to the action of frost on hydraulic mortars and cements when these materials are mixed with water containing different percentages of salt. In making the experiments a series of stone cubes of about 2.4 inch edge were united with cement, which in one case was mixed with pure water and in other cases with water containing from 2 to 8 per cent. of salt. While the cement was still fresh, these blocks were placed in the open air, and exposed for a period of 21 days to a temperature varying from 20° to 32° F., after which they were kept for a further period of 7 days in a warm room. At the end of this time the joints were tested, with the result, we are told, that the cement mixed with pure water was completely disintegrated, having no holding power; the cement mixed with water containing 2 per cent. of salt was somewhat better, though the results obtained with it could hardly be considered satisfactory; while that mixed with the 8 per cent. solution was uninjured by the exposure.

Before undertaking the new sewerage works the city of Warsaw warmly supported an experiment made by a private company, whose factories were at Otchow, 19 miles from Warsaw, for the purpose of testing the value of their peat powder as a disinfectant. The company claimed that this powder, when properly mixed with the fecal matter in cesspits, would entirely remove the abominable smell of sewage, that expensive sewerage works would therefore be unnecessary, and they also maintained that the mixture would furnish an excellent manure. Though the system was a failure as regards Warsaw, owing to a number of local circumstances, it is thought probable that it might be suitable for smaller places, for isolated buildings, such as factories, railway stations, &c.

Ordinary paddle water wheels are not much used in this country, but can be seen in large rivers in Europe, where they float in the middle of the stream. Their diameter varies from 12 to 20 feet. The speed on the circumference is about half the speed of the stream. Their efficiency ranges from 25 per cent. to 30 per cent.

George P. Cowles, vice president of the Ansonia Brass and Copper Company and treasurer of the Ansonia Clock Company, died in this city 21st inst., aged 76 years. He recently returned from Europe in ill health, and was taken with pneumonia. Throughout the trade he was highly esteemed.

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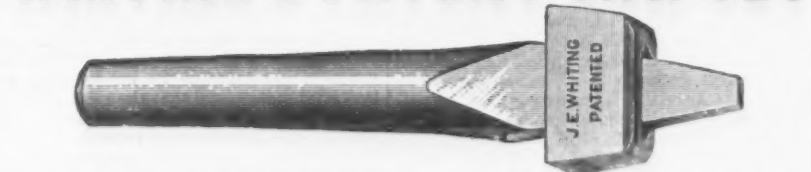
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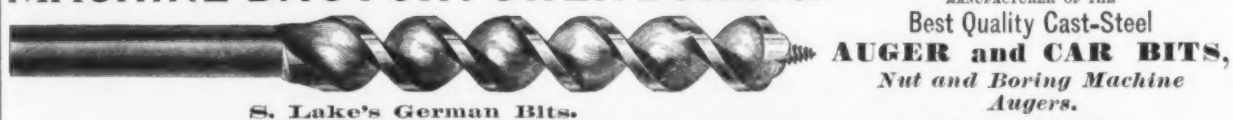
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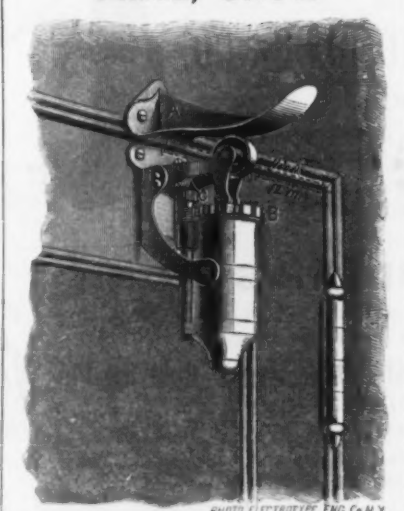
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Iron Ore Mining in Cuba.

One of the English consular reports from Cuba contains the following: In 1883 an American company called the Jurugua Iron Company was formed, and bought a group of the iron mines that had been claimed and reported at a price of about £62,500, built a railway 16½ miles in length, also a large wharf, investing altogether a capital of about £312,500. In 1884 the company exported to the United States 22,000 tons of ore; in 1885, 80,000 tons; and in 1886, 110,000 tons. But, so far, they have not begun to ship in proportion to the capacity of the mines; that they may do so they are building a line of steamers of their own under the English flag, two of which vessels are already running. When the ships are completed they expect to ship 1000 tons of ore a day. There is no underground mining of this ore, but merely cutting down the hill side, throwing away the encasing dirt and rock, and taking out the ore from the solid vein. The ore costs the company: Mining and putting on railway car, 3/10; carrying to railway, 2/3; royalty to original owners, 2½d.; freight to United States, 7/11½; duty in United States, 3/1½; total, 17/4. The shipping cost per cargo of this ore is from 60 per cent. to 65 per cent. of pure iron, and an analysis of a sample analysed in the United States, gives the percentage of metallic iron as 66.06. The quantity of land held by the Jurugua Company for mining purposes is 1783 acres. The remaining mines of iron not sold, some of which are better than the Jurugua, cover an extent of 10,736 acres. Capitalists from the United States have been here making inquiries about these unsold iron mines; and although no further transactions have taken place with iron mine-owners, principally owing to the depression in the iron trade during the last few years, it is exceedingly probable that during the coming winter other mines will be sold and companies formed; in addition to the project of forming a company, with a capital of £333,000, to work the principal iron mines remaining unsold, and connect them by a railway with Havana. Though at first iron mine-owners were asking exorbitant prices, most of them would be willing to sell their properties for a royalty of from 9d. to 11½d. per ton of ore exported, with a moderate advance against same. Among the claims put in for iron mines is one of manganeseiferous iron of large extent, situate 5 miles of easy ground from a lake on the coast. This lake is separated from the sea by a low neck of land 656 yards wide, which, if cut through, would give an entrance from the sea to the lake, and so form an oval shaped port of about 2 miles diameter, having a uniform depth of 26 feet. This would open up a rich country, while there would be a plentiful supply of fresh water from a river about a mile off. The ores from several of the iron mines could be easily brought down to this lake for shipment. Although some contracts have been lately made with people in the United States for manganese mines, none of them have been worked; the analysis of ore from one of them gives a mean of 80 per cent. of binoxide of manganese, or 55 to 57 per cent. of metal.

NEW PUBLICATIONS.

MODERN AMERICAN METHODS OF COPPER SMELTING.
By Edward E. Peters, Jr., M. E., M. D. Published by the Scientific Publishing Company, New York. Price, \$4.

Dr. Peters, who has had a very extensive experience as an engineer and manager of copper works in different parts of the United States, has departed from the policy which unfortunately too many active men adhere to, that of hoarding their experience. During the past decade the development of the copper industry of the United States has been exceptionally rapid. It has been accompanied by the necessity of grappling with new conditions, and it has led to what may be termed purely American modern practice. There has been little that is revolutionary in this change. Progress has not followed lines which appeal to the lover of the sensational. It has been in the direction rather of steady improvement of detail. It is natural that under such circumstances the knowledge of what has been accomplished is confined to a few, making the danger that it may escape attention all the greater. A few valuable contributions to recent literature from the pen of such authorities as Mr. James Douglas, Jr., and Mr. Peters himself have, it is true, recorded some of the successes of American metallurgists, but it has remained for the latter gentleman to gather the material in a harmonious whole. Dr. Peters cuts adrift all of the material which only too frequently incumbers text-books. Instead of presenting in a slightly modified form the substance of such works like Kerl and Percy, he has evidently started with the idea that these standard works are known to his readers, and that his mission is to teach the beginner what these professors have failed to state, not being men who have grappled with the perplexities of active practical work. It is this, we think, which makes Dr. Peters' work unique and gives it exceptional value. He practically surrenders to the reader a greater part of his note-books, with the records of long years of experience, and publishes freely the results of his work, warning against the snares and pitfalls which have endangered his path, and points to the means he found to avoid them. We find throughout the book numerous estimates of cost under normal conditions, which alone will be prized by the beginner, and be frequently referred to by the copper smelter, even after many years of accumulated experience. We cannot too highly commend the work, and can only deeply express our regret that we have nothing similar to it, or approaching it, in the wide realm of the metallurgy of iron and steel or of mining.

THE SUTRO TUNNEL COMPANY AND THE SUTRO TUNNEL. By Theodore Sistro. New York, 1887.

Mr. Sutro—a relative, we believe, of Mr. A. Sutro, originator of the great Sutro tunnel, driven during the years 1869 and 1878 a distance of 20,429 feet, to tap in depth the mines along the famous Comstock Lode, of Nevada—has lately taken an active interest in the litigation in which that great

enterprise has become involved. It appears that as early as January 4, 1877, McCalmont Brothers & Co., the great London bankers, advanced the tunnel company moneys, for which they were given a mortgage amounting to \$124,321.10. By 1878 the indebtedness had increased by further advances to \$433,965.10, which at the time suit for foreclosure was begun—in March, 1886—had increased to \$997,853.52, with compound interest at 12 per cent. per annum adding \$638,872.71. It appears that the control of the company was in hands friendly to those holding the mortgage, and only a *pro forma* answer was made to the allegations in the suit for foreclosure. At this time Mr. Sutro asked to be allowed to become a party to the suit in the interest of the minority stockholders, and later, through his efforts and those of the New York interest, a meeting was held in San Francisco of the Sutro Tunnel Company, the defendant in the case, at which the Sutro party secured control. This gave them new standing in court, and after a number of delays had been secured, the company succeeded in obtaining from the court an order to have certain sums in the hands of the receiver, aggregating about \$200,000, paid over to the mortgagees in part payment of their claims, and in obtaining a grant of certain moneys monthly from the earnings of the company for continuing expenses. Then followed a series of negotiations for the settlement of pending claims, which ended in the provisional arrangement that the company make a cash payment of \$1,000,000. The publication of the little work before us is intended to urge the stockholders to raise the necessary funds to guarantee that payment. It appears that the receipts for royalties from September, 1879, to March 1, 1887, were \$773,367.20, the income of the last year alone being \$254,000. The average of expenses during the past three years has been \$80,000, and it is urged that the revival of mining on the Comstock Lode on the basis of the treatment of low grade ores extracted above the tunnel level will increase this income steadily for at least a series of years to come. Mr. Sutro besides believes that there is a great future for the company in developing that part of their property consisting of mineral veins cut by the tunnel, and granted to the company by the United States. The little work before us is an interesting review of the struggles of one of the most famous enterprises in the annals of American mining.

At the recent meeting of the British Association a paper was presented on "Expansion by Heat of Wires Under Pulling Stress." The wires tested were two fine copper wires. One of them carried about half its breaking weight and the other about a tenth of its breaking weight. The wires were suspended in a tube, a scale being attached to one, and a pointer moving over the scale to the other. Thermometers were inserted into the tube at various points, and the wires were heated by passing steam into the tube. It was found that the more heavily weighted wire extended much more than the lightly-weighted one. An amount of permanent elongation remained, but more in the heavily-strained wire. Each time the heating was done there was more and more permanent elongation, and ultimately one of the wires was broken under less than its breaking load in the normal state. Further experiments were made with wires which had been hardened, and the final result is that the coefficient of expansibility for heat of copper wire strained by a certain weight is greater than that of similar wire less heavily weighted.

On the occasion of the new issue of coins in England in the Queen's jubilee year, the iron dies from which the coins were struck were made by electrolysis. The plaster molds of the originals first received a coating of copper, and on the template thus formed the iron was deposited. According to Prof. C. Roberts-Austen, Chemist of the Royal Mint, London, the iron was of excellent quality. A current of 0.089 Ampere from two Smee elements was used. The solution consisted of sulphate of iron and sulphate of magnesia of specific gravity 1.153, in equivalent proportions. This solution was almost neutralized with carbonate of magnesia until it gave a very feeble acid reaction with litmus. In Russia plates of iron thus obtained are used for printing bank bills.

The Phosphor-Bronze Smelting Company, Limited, of 512 Arch street, Philadelphia, have issued a circular, dated October 10th, in which they call attention to their "phosphorized anti-friction metal," for heavy pressure and high speeds. It has been tested for years by several large consumers, and is now to be more widely introduced. They quote it 30 cents per pound, packed and delivered f.o.b. Philadelphia.

The contract for the 30 mile extension of the Duluth and Iron Range Railroad, to the Chandler Mine in Minnesota, has been let to Shepard & Winston, of Minneapolis. Work is to be completed April 1.

The railroad companies having their headquarters in Chicago have recently been buying supplies with renewed freedom, the stocks they have held being consumed and old contracts having expired. Their purchases cover spikes, track bolts, links, pins, bar iron, &c. The recent financial disturbances have not affected them to the extent of enforcing severe economy, and the indications are that all the companies will build a great deal of new rolling stock this winter in their own shops, which will require a large amount of iron.

Mr. J. R. Avery, of Louisville, Ky., has brought out a new form of automatic car-coupler, in which he retains all the essential features of the old and familiar link and pin coupling. From what we have seen of the device, in the shape of models, it appears to be both simple and effective, and apparently promises to do good work. We understand that a number of couplers of Mr. Avery's design are now in use on the Louisville, New Albany and Chicago Railroad, and according to all accounts are giving satisfactory results.

The Iron Age

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England's Iron Exports and the American Demand.

For some time past the foreign markets have been watched by American manufacturers and consumers of iron and steel to detect any evidences of weakness as the result of lessened sales to this country. Confessedly the rise during 1886 and 1887 there was the result of heavy orders from this side of the Atlantic, and it is only reasonable to suppose that when our demand falls off prices will be adversely affected there. It is becoming evident that sellers there are beginning to realize that the happenings during the past month here are more than a temporary scare, and there has therefore been a slight falling off in values all along the line. So long as they merely follow us we have little to fear, but should they begin to lead, then our producers must be doubly watchful. One of the principal arguments put forward to combat the idea that foreign makers, holders and speculators may become eager sellers is that the impetus given to the trade by our own purchases during the past year has set in motion a buying movement from other quarters. In other words, the market has ceased to be dependent solely for its support upon the American demand. It can hold up even if the latter is withdrawn. Let us examine the latest English export statistics to obtain some light on the subject. According to the Board of Trade returns for the first nine months, the exports to all countries were as follows:

English Exports to all Countries.

	Nine Months.	1886.	1887.	Quant.	Value.
Pig iron.....	793,314	883,379	11.0	+	22.0
Bar, angle, bolt and rod.....	172,292	190,118	10.3	+	5.4
Railroad iron.....	569,252	741,287	30.2	+	15.5
Wire and telegraph.....	26,686	32,462	9.4	+	7.9
Hoops, sheets, boiler and armor plates.....	224,923	256,239	13.9	+	4.9
Cast and wrought iron.....	229,925	208,793	3.3	+	5.4
Old iron.....	304,555	226,045	116.1	+	130.6
Steel, unwrought.....	88,474	234,615	163.0	+	68.0
Tin plates.....	255,031	267,066	3.9	—	1.4
Steel rails (included in railroad iron).....	384,631	559,054	45.0	+	31.4

These figures, indeed, show a very substantial gain with which the English producers

might well be content, if it were not that values have not in the majority of cases failed to keep pace with the quantities. The exports to this country during the period under review were:

English Exports to the United States—Nine Months.

	Gross Tons.	1886.	1887.	Quant.	Value.
Pig iron.....	340,531	331,336	2.6	+	1.0
Bar, angle, bolt and rod.....	2,404	2,417	0.5	+	0.2
Railroad iron.....	27,061	135,621	395.2	+	15.5
Hoops, sheets, boiler and armor plates.....	14,969	27,302	81.5	+	3.0
Cast and wrought iron.....	1,328	2,339	76.1	+	2.8
Old iron.....	36,404	155,845	320.0	+	35.0
Steel, unwrought.....	48,769	133,210	174.4	+	6.0
Tin plates.....	303,472	203,701	33.2	—	1.4
Steel rails (included in railroad iron).....	26,427	132,567	250.1	+	10.0

It will be observed that in the very items in which the English exports show the heaviest increase the United States participates most prominently. This will be best shown in the following table giving the exports of iron and steel to all countries but the United States:

English Exports to all Countries excepting United States—Nine Months.

	Gross Tons.	1886.	1887.	Increase.
Pig iron.....	532,782	552,053	3.7	+
Bar, angle, bolt and rod.....	169,861	187,731	9.5	+
Railroad iron.....	542,191	605,666	10.5	+
Hoops, sheets, boiler and armor plates.....	309,934	228,937	8.2	+
Cast and wrought iron.....	258,627	305,555	2.9	+
Old iron.....	68,151	70,160	2.8	+
Steel, unwrought.....	44,705	51,405	11.1	+
Tin plates.....	52,157	63,815	18.3	+
Steel rails (included in railroad iron).....	358,234	436,457	16.0	+

The business done with other countries than the United States did increase considerably in 1887 over 1886, but it was only a small part of the greater tonnage. Thus it is a striking fact that the exports of pig iron to other countries remained stationary. The increase of 30 per cent. in the shipments of railroad iron drop down to 10.5 per cent., leaving out the United States. In steel rails it is probable that a part of the quantities credited to this country really go in transit to Mexico or Canada. In hoops, sheets and plates the total exports indicate a growth of 13.9 per cent. Dropping out the United States, it falls down to 8.2 per cent. Old rails and scrap are credited with an increase of 116.1 per cent., including the exports to this country; excluding them the figure is only 2.8 per cent. The same is true of steel, unwrought. Our purchases carried the exports of the first nine months of 1887 to a point where they showed an increase of no less than 165 per cent.; without them it drops to a modest 11.1 per cent.

We believe that no more striking proof could be brought forward in support of the position that the improvement in the iron and steel trades in England during 1886 and 1887 was principally due to the demand from our country. This fact is thoroughly appreciated abroad, and as soon as it develops serious signs of dropping back to its normal volume, which is much less than it was even in 1886, a sharp struggle will be made for a share of the business which threatens to slip away. It must not be forgotten that the heavier shipments have merely checked a dangerous tendency toward the accumulation of stocks. Current production abroad has taken care of our exceptional requirements. The enormous stocks of pig iron have hardly been touched and in some districts have been actually growing somewhat during that time. It will take a steady continuance of the demand from other quarters than the United States to offset the inroads which American manufacturers will certainly seriously make upon the business which foreign producers temporarily captured here in 1886 and 1887.

During the past few years industrial exhibitions have been made a pretext for private enterprise in a way well calculated to disgust manufacturers all over the world. It is true that a number of them have been worthy of support, and have been eminently successful, not alone for those who initiated the enterprise, but also for exhibitors. Yet, even the best of them have, to some extent, sailed under false colors. Good-natured members of reigning families, or easy public bodies, have given them the appearance of official backing. It is, perhaps, natural that the deception thus practiced for the support of honest enterprise should be seized as a convenient cloak to screen more disreputable schemes. The most flagrant case of this kind is that of the late Paris Railway Jubilee Exhibition, the history of which is revealed by our special correspondent in a letter which we print elsewhere. The affair was a downright swindle, concocted by a number of schemers and speculators, of whom a few found it convenient to live under an alias. The cowardice and double dealing of the official authorities, after once they found how they had been entrapped, is an even more painful spectacle than the rascality of the promoters. To American manufacturers, who are being constantly importuned to take a part in industrial exhibitions in Europe, the history of the Paris Railroad Jubilee conveys a serious warning. They should invariably decline to waste money in participating in shows until they have been thoroughly convinced that the promoters of the enterprise are respectable and representative persons, and that the local authorities have given them their support after thorough investigation. Thus, American manufacturers should demand and obtain far more convincing proof than they now

have that the forthcoming Paris exhibition of 1889 is not, as our correspondent directly charges, a repetition on a grander scale of the shameful undertaking which has just collapsed. Those charges have not been lightly made, but come from one who has closely followed the matter for a considerable period. Until every vestige of suspicion is removed, American manufacturers will do well to let the 1889 exhibition severely alone.

Collapse of the Gogebic Speculative Boom.

Announcements of trouble in connection with some mine in the Gogebic district of the Lake Superior iron ore region are being made with monotonous regularity of late. A year ago, when mining companies were being organized by the dozen, with an authorized capital in each case ranging from \$500,000 to \$3,000,000, for the purpose of "developing" marvelously extensive deposits of ore in this district, we called attention to the fact that the business was being overdone; that it had degenerated into a gross speculation; that mining companies were being established for the mere purpose of floating certificates of stock which had no actual or prospective value, and that eventually the credulous purchasers of stock in a large proportion of these companies would find their investments a total loss. The end appears to have come. With the exception of perhaps a dozen of the largest and best, the mines of this district have been compelled to shut down and hundreds of men have been thrown out of employment. The shrinkage in the value of the stocks of the companies operating these mines has been enormous—some stocks having no quotable value whatever, while others worth \$5 a share but a few months ago now go begging for a purchaser at 20 cents.

There are some mines in the district which have a high reputation, and are being managed upon a strictly business basis, the stock of the companies owning them being still quoted at a high figure, and probably worth every cent of it. These mines are still in operation, and will continue to be operated in good or bad times, because their ore is of excellent quality, is mined inexpensively, and exists in great abundance. But the organizations controlling the other mines were many of them started solely for the purpose of selling out the stock during the excitement which followed the announcement of the discovery of an enormous deposit of rich and pure ore, easily accessible for shipment, and at a most opportune time, when the iron trade was exceptionally prosperous and ore was in urgent demand. Some of the companies which have gone to the wall were, it must be admitted, originated by parties who had good intentions, and who spent large sums in trying to find ore where they supposed it ought to be found, or in working a deposit which proved to be pockety, and could not produce ore below market rates.

Those interested in mining on the Gogebic range insist that one of the principal reasons for the closing down of some of the mines is the trouble experienced in collecting money for ore sold, or in getting the banks of Cleveland, Chicago or Milwaukee to accept furnacemen's paper. They report some extraordinary cases of this kind. The coke strike earlier in the season, and the Cleveland ore-handlers' strike a little later, caused delays, and the rise in Lake freights created additional complications. Capital was needed to tide over just such contingencies as this, and some of the new companies were not prepared to face the drain upon their resources caused by the continued working of their mines and the payment of miners' wages, without expected receipts from the sale of the ore previously shipped.

Trouble also arose concerning the quality of the ore. Contracts were made with furnace owners guaranteeing the delivery of ore of a specified richness in metallic iron, and strictly within the Bessemer limit with regard to phosphorus. These contracts were carried out to the letter by the principal companies, but many of the minor ones, who had relied upon uniformity in the ores of the district, found that their customers were disappointed in the character of the ores shipped them, and demanded to be released from their contracts, the metallic iron falling to 57 or 58 per cent. in some cases and the phosphorus running entirely too high for Bessemer pig iron. Such ores became a drug in the market, and the low prices realized for them caused the pleasing prospect of rapidly accumulating wealth to fade from the vision of the average Gogebic mine-owner.

The situation in the Gogebic mining district is now reported to be very serious. A large number of men are idle and winter is at hand. In addition to the local distress, however, there are other grave consequences following the collapse of this speculative movement. Large sums of money have been invested in mining stocks by people who can ill afford to lose the money. Clerks, mechanics, laboring men, and even women, have been induced in some towns of the Northwest to put their savings into these stocks in the hope of getting huge returns, and it is more than probable that many hardships will be suffered by these poor people who have been duped. Meanwhile, the district contains some very good mines which will return ample profits to their fortunate owners, and in their operations in

the future the excellent reputation of the iron ore, shipped from the Gogebic region, will be sustained.

The Advance in Tin.

During the few years which preceded the crash at Vienna in 1873, and the general financial and commercial crisis then inaugurated, both copper and tin were worth at one time £120 in the London market. The latent depression which followed brought down tin at one time to £53. This extraordinary depreciation was precipitated by the large production of Australia, both mainland and Tasmania. But tin gradually recovered when it was found that, instead of turning out much over 10,000 tons, Australia furnished a gradually diminishing supply, reaching its minimum of 7506 tons last year. Speculation for a rise coming to the assistance of the metal, it was pushed to £110, when general business recovered from the long stagnation that had lasted some five years. The advance was short-lived, however, and tin settled down to between £80 and £100 for a long time; yet it withstood the general decline in raw material better than any other article, and for a short period last year reached £103. 5/., the lowest in 1886 being £91. 7/6. The present year opened at £100, and the fluctuations were moderate during the summer.

After the fall season had set in the struggle between the bulls and bears in London and on the Continent became more lively. In April a French syndicate had been formed for the purpose of obtaining control of the market. Their operations were extremely cautious, and served to steady the European market till they felt sure of their game. Having successfully cornered the market, the price was pushed to £117 last week, from which it soon receded a couple of pounds, in order to reach £118. 10/ early this week. The chief strength in support of this speculation for a rise lay in the fact that, without the shadow of a doubt, consumption in Europe and America had gradually got the better of production and the reserves, leading to actual scarcity of available tin on both sides of the Atlantic, while the consumptive demand was active. An examination of production and consumption during a period of 10 years will demonstrate this fully:

World's Production of Tin.

	Tons.		Tons.
1877.....	34,367	1882.....	39,771
1878.....	35,349	1883.....	45,379
1879.....	38,163	1884.....	43,851
1880.....	38,321	1885.....	42,776
1881.....	39,338	1886.....	44,687
Total.....	185,607	Total.....	216,464

World's Consumption of Tin.

	Tons.		Tons.
1877.....	32,371	1882.....	42,045
1878.....	34,018	1883.....	45,686
1879.....	37,859	1884.....	45,735
1880.....	39,533	1885.....	49,039
1881.....	43,483	1886.....	46,520
Total.....	188,144	Total.....	223,025

Recapitulation.

	Production.	Consumption.
	Tons.	Tons.
1877 to 1881.....	186,007	188,144
1882 to 1886.....	216,464	223,025
Total.....	402,471	411,169
Increase of consumption.....		9,698

On January 1, 1887, the reserves, excluding unsold Banca, had fallen to 11,679 tons, against 13,430 on January 1, 1886.

October opening at £105, the high price stimulated heavier shipments from all quarters where they could be pushed off, and on October 1 the visible supply stood in Europe and America 11,871 tons, against 11,606 same date last year and 15,025 October 1, 1885. The reduced visible supply in the fall of 1887 and 1886, as compared with what it was two years since, clearly shows that in order to meet the increased demand commerce has for two years past been drawing on its reserves. Tin is not a metal whose production can be suddenly much increased anywhere, even under the stimulus of high prices, and as the syndicate alluded to have got the control of a goodly portion of the reserves, the advance has been brought about. It is a question whether consumption at ruling prices will diminish sufficiently to produce a serious reaction.

Export Freights.

In a recent issue we gave a brief history of the differentials in freight rates, which were established by agreement of the railroads in 1882 on exports of grain and provisions, as between New York, Philadelphia and Baltimore. By this agreement the freight rate from Chicago to Philadelphia was made 2 cents less than the rate to New York, and from Chicago to Baltimore, 3 cents less. These were supposed to represent, as nearly as it could be expressed in figures, the disadvantage under which Philadelphia and Baltimore labored, as compared with New York, and therefore it was expected that these differentials would so divide the export traffic between the ports named and the railroads serving them that each port and each railroad would get its fair share of this important traffic. The difficulty of expressing in cents per hundred pounds so many and variable factors in the total expense of exporting from Chicago to Liverpool was a great element of weakness in this theory, and the late demoralization of export through rates from the Mississippi River to England brought the fact clearly before our railroad managers. The proposition of some of our

managers was that the rate on wheat and flour from Chicago to New York, when for home consumption, should be first fixed at a reasonable figure—one which should pay the railroads a fair profit, without hardship upon the wage-earning classes—this rate to be steady. Then, that the through rate on breadstuffs for export should be fixed, perhaps, by a permanent committee, from Chicago to Liverpool, at the lowest price above cost of service demanded by the Liverpool market, this rate to be made openly and to be quoted the same by all the lines and through all the ports. This rate might fluctuate if found necessary, and from it each road might take what proportion was left after deducting terminal expenses and ocean carriage. Thus the advantages of the different ports would equalize themselves naturally.

The committee appointed by the railroads to consider this matter has just made its report. It favors a restoration of rates, which indeed was some time ago voted. It also advocates a through rate from Chicago to Liverpool, based on an average of the ocean rates, the railroads to quote the same and assume responsibility for fluctuations. It will be thus seen from this cautious report that it needs but a break in the quoted export rate to bring about the very situation which we have just mentioned.

The silence of the committee on the question of the domestic as affected by the export rate is ominous of such a probability. The report must be considered as only a step in the solution of the problem. If it is true, as is openly charged, that during the low rates a number of contracts were run at the prevailing cut rate which will run into 1888, it follows that the full quotations recently agreed upon from Chicago to Liverpool (and by full we mean the sum of the domestic rate and the ocean carriage) will soon drop, by all the lines and ports, to the basis of the lowest quoted rate.

It is of the greatest importance to the prosperity of the country at large that we should continue to export breadstuffs, and that these exports should be carried to Liverpool at the lowest possible rate. We produce more than we consume, and it is essential to have a market as favorable as possible for the surplus (about one-tenth of our product). Moreover, the prices of our grain and flour are made at Liverpool in competition with India, Russia and other countries. The cost of transportation, therefore, cannot be added to what might be considered a fair price at home and so charged to the consumer, but must be deducted from the competitive price and paid by the farmer. Herein is one fundamental difference between export and domestic traffic; expressed briefly, the freight rate on the former is what the railroads can get above the cost of carriage; on the latter or domestic traffic, the rate is what is reasonable of itself. Heretofore our railroads have always made the rate from Chicago to New York the same, whether the wheat was for domestic consumption or for export. The ease of transacting the business under this arrangement was of value to the railroads, for grain thus sent to the seaboard could be re-consigned to Europe without further formality and without change of the through rate. Under this system a large and important export business has been built up at the seaboard, and a serious drawback to any change of system would be the great damage inflicted upon a long-established trade. But means might be found for overcoming this objection.

The fixing of a different rate upon goods when for export and when for domestic use is not new—it is a recognized principle in European tariffs. The rate on cotton goods from Manchester to London is 25/ per ton when for export, and 40/ when for local trade. On hardware the rate is 25/ from Birmingham to London when consigned abroad; otherwise it is 27/6 per ton these including collection and delivery. These differentials arose partly to encourage English manufacturers and partly from the strong competition by sea from near-by ports. In France a regular system of reduced rates on exports runs through the classification. In Belgium window glass is carried from Charleroi to Antwerp at 6.30 francs per ton for export and 8.25 francs for local use. These foreign railways also have special import rates, as, for example, on cotton. In the United States no effort has as yet been made to introduce this principle, partly because our industrial system has made the market of our own country our chief objective point. Under our present system the conditions which compel a reduced rate on exported manufactured goods by the railroads abroad might not press upon our American roads perhaps for years. With our compulsory exportation of agricultural products the case is different, and this pressure is even now felt by our great railways, as the present situation demonstrates. An important point for our manufacturers who may be looking for a foreign market is the question whether special rates on exports once granted to grain and meat might not be then extended to manufactured goods, as in Europe. If for this reason alone the progress of the railroads toward their settlement of this vexed problem will be watched with great interest.

One objection deserves consideration. If the railways can carry exports from the field or factories to the seaboard at a certain rate, why cannot they carry the same goods at the same rate for our own citizens?

This feeling is a widespread but entirely mistaken one. If what we have just said is true, that the price of wheat is settled by competition at Liverpool, and that the farmer can only receive the Liverpool price, less the freight charge, it follows clearly that any reduction in this freight charge is for the benefit of our own people and not of foreigners. This is conspicuously true of wheat, and, indirectly, no less true of manufactures sold abroad in competition. In the case of the Boston merchants against the Vanderbilt roads for charging more to Boston for domestic use than for export, this is one of the arguments. The complaint of the Boston Chamber is just, but rests on other grounds than the theory that a drawback on exported grain is "discrimination against Americans." Under the long and short haul clause of our law a larger charge in the aggregate cannot be made for a shorter haul. This does not mean a *pro rata* charge, and what freights may be put upon the rail proportion of a through price to Liverpool is only a proportion of that through rate, and exempt from the penalties of section 4, unless the total charge be less than the domestic rate. The same principle which justifies the railroads in charging a higher rate for dry goods than for coal, in the end will also justify them in accepting a lower proportion for special long transportation than for the usual short carriage over the same route.

Resources and Future of the Transvaal.

The resources and probable future of the South African republic, the Transvaal, have been discussed a great deal of late in Holland and Germany in consequence of a 6,000,000 guilders 5% railroad gold loan, at 95, subscribed to in October in the financial centers of the two countries named. This loan is guaranteed by the Transvaal Government. The object which the latter has in view is to throw the Republic open to commerce, which can only be done by a railway connecting the Capital with Delagoa Bay, on the southeastern coast. The Netherlands took possession of the Cape of Good Hope in 1652 and settled the country; in 1814 it became the property of the British Crown. In 1836 began what is called the "trekking" of a part of the Dutch, or Boer, population, who had become so estranged from the British Government that they preferred the perils of the wilderness to remaining under its rule. This remarkable movement resulted in the colonization of Natal, still British, of the Orange Free State, and of Transvaal, the latter gaining its independence sword in hand in 1881.

Transvaal covers an area of 112,700 square miles. The census of 1879 showed the population to be 829,000, of whom but 55,000 were whites, the remainder being negroes. On June 30, 1887, the Government had in bank a cash surplus of £201,455. 12/5, and was then owing abroad only 839,000 guilders 5 per cent. and 500,000 guilders 6 per cent. bonds in Holland, where the former command on the Stock Exchange over par and the latter 107. The Government also own 5,660,744 acres of land, surveyed in 1882, when its estimated value was £531,610. The budget estimate for 1886-87 was £271,984 income and £251,921 outlay, but the actual revenue collected proved to be £403,092 and the expenditure only £239,681. For the current fiscal year, 1887-88, the income is estimated at £631,481 and the outlay at £470,677. The first quarter showed £152,080 collected and £105,567 spent; hence the rapid accumulation of a surplus. The revenue is derived from a land tax, a poll tax and licenses; indirectly from duties on imports, which in 1885-86 netted £39,406. Instead of a standing army, all citizens capable of bearing arms are enrolled in the event of war. During the war in 1881 5000 Transvaal Boers did the fighting. The import amounted in 1884-85 to £524,966. Between April 1, 1873, and April 1, 1886, the export of Transvaal gold amounted to £532,342. The staple articles exported are wool, live stock, wheat, hides and skins, fruit, butter, brandy, ostrich feathers and ivory. The mineral resources are considerable, comprising gold, silver, copper, lead, cobalt and coal. The chief "Kaap" gold-producing district is the one of Lydenburg; next to it in importance is Witwatersrand in the Heidelberg district, where a mining village, Johannesburg, has sprung up recently. Quartz gold claims, registered by the Government officials, measure 150 by 400 feet, and place gold claims 160 by 150, the monthly license being 10/ to £1 per claim. In January, 1886, the Government gold claim licenses produced £15,000; in January, 1887, the income therefrom was £60,000.

Transportation is slow and expensive, being so far restricted to conveyance by ox carts, 16 to 24 oxen dragging along a cart with a cargo of 200 cwt. The expense amounts to 25 per cent. on the cost of merchandise on an average. Imports into Transvaal at present either pass through Natal, where they pay 7 to 15 per cent. duty, or via the Cape, where the duty is 20 per cent. ad valorem. Via Delagoa Bay the Portuguese Government has agreed not to charge over 3 to 6 per cent. transit dues. We extract from a letter, dated Johannesburg, September 10, the following passages: "The South African gold-fields grow in importance daily, for there is not a day that passes without new gold reefs being discovered. During the last month gold was ex-

ported to the value of £40,000 from this locality alone, and from the few works that were opened up last year £134,000 worth of gold was registered. The discovery of gold has already added about 20,000 to the population of the country, and the Government, which was languishing through want of revenue, has become the richest in South Africa. There has been a very large amount of machinery brought into the country, at the lowest estimate to the value of £1,000,000, but the proportion erected does not exceed one-third, and but few batteries are yet at work, so that the output of gold cannot yet give anything like a fair idea of these gold-fields. There will be by the end of the year at least 750 stamps at work in the Witwatersrand alone, and at Barberton 500 more, so that the export of gold for 1888 may be fairly expected to be very large indeed. These gold fields cover a vast amount of country. They run a length of at least 600 miles over the line of country between Kimberly and Delagoa Bay. There has been some machinery imported into the gold fields of American manufacture, but not a great deal. The chief portion of it has been sent out from Chicago firms. The importation of machinery is very costly, as it has to be brought over such long distances of bad roads."

The railroad from Delagoa Bay to the Portuguese Transvaal frontier, 52 miles, will be finished before 1887 comes to a close from Nelspruit, the frontier station, to Pretoria, the capital, across the Lydenburg district, near the gold fields. The distance is 77 miles, and this is the section to be built with the proceeds of the 6,000,000 guilders gold loan alluded to. Work commenced on the Delagoa Bay Railroad on May 3, 1886, and on June 21, 1887, the Netherland South African Railroad Company were incorporated at Amsterdam. This company secured the exclusive privilege of building all railways in the Transvaal. The capital is fixed at 8,000,000 guilders, of which 2,000,000 shares paid up in full, and on the bond issue we have named the Republic, besides guaranteeing the payment of the bonds, pledges its import duties as a special guarantee for the payment of the interest. A sinking fund is provided with annual drawings, commencing its operations in 1892, and canceling the bonds in 51 years from that year. All railroad material is to be procured either in Holland or Germany. The telegraph links Pretoria to the "Kaap" auriferous districts, a distance of 240 miles.

It should be mentioned that since the rise in wool the Cape Colony and adjoining two republics the Transvaal and Orange Free States—have begun to flourish once more; diamond production at the Cape is as great as ever, and this entire region attracts commerce and enterprise backed by capital as much as it ever did before. The Boers have even been extending their sway, and in 1885 the new Boer Republic was founded, called by them the New Republic. Freebooters from the Transvaal founded it at the expense of the Zulus. It occupies the western part of Zululand, and does not reach the coast. Its area is about 1800 square miles, and its capital is Vryheid. On October 11 the cable reported from London that a treaty of union had been concluded between the Transvaal and the new Boer Republic. Henceforth they will be one State and under one president. The first chief magistrate will be S. J. P. Kruger, who is now president of the South African Republic. The capital will be Pretoria. In the peace settlement of 1881-82 England reserved the right to be consulted in similar matters, and her formal sanction of the union is awaited. Negotiations are now proceeding between Transvaal and the Orange Free State.

American trade with British South Africa has during the past two fiscal years developed as follows:

	Import.	Domestic export.
1886.....	\$1,362,568	\$1,282,550
1887.....	1,392,940	1,400,256

The new railroad alluded to will perhaps be finished to Pretoria in a year from now, when we may ship to Transvaal direct, instead of via the Cape Colony, and it is to be presumed that in the course of time desirable connections may be formed in that direction. Both Holland and Germany take a lively practical interest in the future of the young Republic, which can hardly fail to become most promising.

We have just received a number of circulars relating to the permanent technical exhibition, at St. Petersburg, Russia. On the programme it is stated that, among other useful objects, the institution will aim at affording support and encouragement to inventors; procure samples of every kind of natural or manufactured product, and assist all exhibitors by undertaking, when so desired, to effect the sale of their exhibits, and enter into contracts on their account for further deliveries of their goods. It occupies the premises of the association of engineers of ways and communications. The agency for this country is in the hands of Mr. A. Warschawsky, 14 Dey street, New York, who is assisted by Messrs. Lury & Maddaus, and from whom all details relating to the undertaking can be obtained.

The Owens Brass Works, 224 and 226 Washington street, Chicago, were burned out on the 23d inst., with a loss of about \$7000, fully insured. Various other tenants of the same building and adjoining structures suffered similar losses, among them being the A. M. Dolphin Laundry Machine Mfg. Company; the Chicago Telephone

Supply Company; T. P. Robach & Co; screw and die manufacturers, and the Marshall Health Lift Company.

The Paris Railway Exposition and the Exhibition of 1889.

(By a Special Correspondent.)

The Paris Railway Exposition, which has just been closed, cannot be said to have been the grand and brilliant success which the long list of prominent supporters and the varied programme announced in the earlier circulars would seem to have promised. The letters sent out by its promoters to foreign countries were so filled with the names of cabinet officers as honorary presidents, with deputies, engineers, councilmen and manufacturers as committeemen, backed by the apparent sanction and patronage of the general Government of France and the municipality of Paris that the whole outside world was deceived into believing the scheme to be one of the Government, and not even of a thoroughly reliable syndicate. The Municipal Council granted the use of the finest part of the Bois de Vincennes; a member of the Chamber of Deputies was president of the Board of Administration; the President of the Republic created the exposition a bonded warehouse, and all was serene and prosperous. Circulars and letters containing all of this official information were sent out by the thousands; meetings attended by prominent engineers were held in England, and exhibitors were led to believe that France was really to hold a great international railway jubilee.

But the scheme, so brilliant in conception, was destined to a world of trouble. The financial support weakened; the senators and deputies and engineers and manufacturers became frightened; M. Montant, the deputy president of the Executive Committee, withdrew, and the promoters were left with no support but the names that had been so freely given them. The foreign exhibitors were kept in the dark, and not one was informed officially or unofficially that the State support was gone. The president of the Executive Committee, upon whose name and official position everyone relied, dropped out without even notifying the foreign commissioners with whom he had been in correspondence that he had withdrawn. All of this happened before the opening day. The newspapers of Paris were loud in their praises of all that was done at Vincennes. Long articles and paragraphs were in every paper on the promised and existing brilliancy of the *fêtes*. From them one would think that all that was good and worthy of notice was assembled in this park; and, though the buildings were unfinished, the park in disorder, the exhibitors discontented and the administration inert, the leading papers of the Paris press continued to puff and praise. Insiders knew the reason why, for a regular contract had been made with the press association, by which, for a stipulated cash payment, the papers not only agreed to say nothing against the scheme, but to publish anything and everything that the administration might dictate.

Still, matters grew worse and worse; no agreements were fulfilled, no promises were kept, and the complaints of exhibitors received no attention. The commissioners from the United States, England, Holland, Belgium, Switzerland and Austria formed a committee and protested to the Municipal Council against their treatment, and asked that the exhibition be compelled to carry out its engagements. The council ordered an investigation, with the result that their committee presented a report condemning in the roughest terms the action of the exhibition administration. It called attention to the position taken by the city and the use that had been made of this prestige to induce foreign exhibitors to come to Paris; it asserted that the Municipal Council was legally responsible for all of this and must protect their guests. This was worse than had been supposed, and the worthy councilmen who had been so proud to foster the successful exposition that was to be promptly refused to accept a report that threw the burden of the weakling upon their shoulders. The foreigners then turned to the Prefect of the Seine, the Ministers of Commerce and of Public Works, but with no avail, for they had resigned from all connection and their responsibilities were ended, even though the influence of their names was still being used.

Then, to help themselves, some packed up and went away; some covered up, but allowed their exhibit to remain. One American exhibitor, the Yale & Towne Mfg. Company, secured a place for their exhibit in the Conservatoire des Arts et Métiers, and are now holding a private exhibition of their own. But before this could happen the chief promoter in the scheme became a bankrupt, and the exposition struggled feebly for existence. Then the Société Civile—that was the exposition—failed, and the whole affair was let to speculators. This was followed by a general stampede. The English were the largest exhibitors. The Board of Trade and others had valuable exhibits, and no protection against theft or mutilation was granted them. Influence was brought to bear to prematurely close the place as a bonded warehouse, which brought about the final climax and the end.

The Secretary-General was a man of such unsavory reputation that he could remain in France only under an assumed name, for, had he used his correct name, he would have been arrested for previous nefarious operations. The whole exhibition was really launched by a ring of "knights of industry" as a means of making money out of all who came in contact with them. Had all gone well, no doubt the patrons would not have withdrawn. Although I saw the unsatisfactory state of things upon my arrival, diligent inquiry could elicit nothing but misstatement, and I was led to believe and shown papers corroborating their assertions that the palace could barely accommodate all exhibitors; in fact, at no time was one-sixth of the palace occupied. The steam boilers were fired exactly seven times, and then only at night for the electric lights. I send you a fly-sheet which gives an exact history of the exhibition, corroborating

some of my statements, and have in my possession the suppressed report to the Municipal Council of Paris, by its committee, which I must retain, as I have put in a claim for damages and support it by the findings of that committee; otherwise I should forward it also.

The exhibition of 1889 is also only semi official; the chief responsibility does not lie in the Government, but a close corporation of industrial speculators. The buildings are progressing very slowly, and it is very doubtful whether they will be ready by 1889, particularly as money is scarce and there is continual dissension among the administrators. All governments have refused to participate officially, and Italy alone has conceded a small fund to the Board of Trade to participate and protect its possible exhibitors, as France is the principal consumer of Italian products. Not one other country has as yet turned a hand to participate. Many of the originators of the Railway Jubilee Exposition are interested in the exposition of 1889, and these are nearly all of them men of no particular calling, merely picking up chances here and there, or waiting for something to turn up.

As taxes are excessive in Paris and trade is unusually dull throughout France, there are numberless poor in the city who must be kept busy, and something must be done to attract strangers and produce a temporary change in trade; therefore the project of this exposition. It is a vast undertaking, and in the way people are wont to work here gives employment to an army of men, and later on it will not only occupy thousands in attending to stands, but it will no doubt attract numberless strangers. But it is not an exhibition; it is a French bazaar and project of entertainment, for the benefit of themselves alone, entirely at the expense of strangers. With the unsatisfactory state of affairs in its internal management and the absolute lack of sympathy from all foreign governments, boards of trade and corporations, there is the greatest probability that the Railway Jubilee Exhibition will be only repeated on a larger scale in 1889, and it would indeed be well to warn all of our countrymen against wasting their time and money, as no good to them can possibly come of it.

Iron Mining and the Iron Trade.

(From an Occasional Correspondent.)

To the Editor of The Iron Age: DEAR SIR—The recent accounts of the collapse of numerous companies founded on the lately discovered and famous Gogebic range of iron ores has only served to bring to our minds the fact that "history is repeating itself." This has occurred in all past generations, and will doubtless continue to do in all time to come in many kinds of business. In your valuable journal some weeks since the allusion therein made to "the craze" which was apparent should have proved a warning to those who were not well acquainted with real values in iron-ore properties. Your articles and the valuable letters which you published, written by Mr. John Birkinbine, all combined pointed out the danger ahead to the uninitiated. There are many valuable deposits of the best kinds of iron ore in the Lake Superior region adapted both for steel and iron, but like all other iron-bearing districts, there are some which would be dear at a "gift." But the country has about reached its maximum for steel requirements, for it is an acknowledged fact that for rails, and many other uses, as wagon tires, agricultural machinery, armor, &c., iron cannot hold its place against steel. On the other hand, steel is not nearly as good (if the iron is properly made) for railroad car axles, bolts, bridges, nails of all sorts, and a thousand other things as iron. It is not likely that over one-third of the entire product of iron wares to be used in this country in the present century will be of steel. The other two-thirds of our product will be iron to go into water-pipes, car-wheels, stoves, castings of every sort, and bars of every description. It is fortunate that such is the case, for if nearly all steel was to be used the supply of ores, domestic and foreign, would soon run out or grow so scarce as to cost too much to enable us to meet prices of our foreign competitors. A good iron mine is still valuable, more so than one year ago, and for many reasons. Not many new deposits near the coal measures are being discovered, while many of the beds or veins that have been continuously worked for over a century, as some of them have, are pretty well worked out or have reached that stage where it is much more costly in mining. There are very few of the older mines in New York, New Jersey and Pennsylvania where the cost of mining is not from 20 to 30 per cent. greater now than it was 20 years ago. An iron works without a supply of iron ores controlled by itself is much like a bank without bullion or a reserve. It is true that sometimes such works can buy ores cheaply, but then it is always when iron is at its lowest figure. As iron appreciates in value ores always advance in price a little faster, so that the maker of iron who depends on buying ores, is almost always a party to the mine owners' prosperity without sharing in the profits. Owing to an insufficient supply of both iron ores at reasonable rates, and the want of coal and coke (owing to strikes), the make of pig iron in Eastern Pennsylvania, New Jersey and New York is likely to be diminished this year by at least 100,000 tons. This will help the "New South," and average up prices somewhat for the coming winter, and have a favorable effect on the price of pig iron far into the next spring. So that, after all, "it is an ill wind that blows nobody good." C. S.

October 30, 1887.

The contract for the new steamship for the Oregon Improvement Company has been awarded to Neale & Levy, of Philadelphia. She will be 230 feet long, 34 feet 6 inches beam, and 25 feet 3 inches depth, molded dimensions, and be provided with the latest design of triple expansion engines, with cylinders 20, 31 and 51 inches diameter of cylinders, by 36 inches stroke, with steel boilers four in number, 10 feet diameter by 11 feet long, to carry 150 pounds steam pressure.

WASHINGTON NEWS.

(From Our Regular Correspondent.)

WASHINGTON, D. C., October 25, 1887.

The Wire Rod Case—Secretary Fairchild's Views on the Subject.

The Secretary of the Treasury will take no action on the question of a revised classification of the duty on the smaller sizes of wire rods. Some months ago the manufacturers of wire rods claimed that the classification in vogue at the Department was not in accordance with a logical construction of the provisions of the tariff statutes, and asked for a hearing in order to make their position understood. Early in the summer the Secretary of the Treasury accorded the domestic manufacturers a hearing. The increase in prices at the Department construction of the duty opened the way to a large influx of foreign rods. The wire rod manufacturers having stated their case, the importers and domestic manufacturers of wire were afforded an opportunity to reply. Arguments and briefs, with other documentary testimony, were submitted to Assistant-Secretary Maynard, who had the matter in charge. The claim of the manufacturers was to class wire rods lighter than No. 5 wire gauge as wire, instead of rating them as steel not otherwise provided for, or 45 per cent. The duty on wire rods of the larger sizes was specifically $\frac{1}{2}$ cent a pound, while the 45 per cent. rate for smaller sizes was too low. The importers combatted this position, and the case was left for determination. Assistant-Secretary Maynard gave the whole subject very thorough consideration, and submitted his report to the Secretary of the Treasury.

The Secretary, in conversation with the correspondent of *The Iron Age* to-day, said that no action would be taken upon the wire-rod case for several reasons. One, that the question as it stands is purely hypothetical and does not come up by appeal through the proper channels; that no decision could be made, as there was no case to decide; that the only way the matter could be reached would be by new instruction to the collectors if the present practice were reversed. In the latter case, the Secretary said that to adapt the classification to the wishes of the domestic wire-rod manufacturers would show great inconsistency on the part of the Department, as the present classification was made not very many months ago in accordance with the views of the very interests now seeking to have it reversed. According to this the larger sizes of wire rods will continue at $\frac{1}{2}$ cent a pound, and smaller not as wire but under the non-enumerated 45 per cent. rate. The Secretary, speaking generally upon the subject of classification, as illustrated in the case in point, said that the Department could not consistently jump from ad valorem to specific rates in the construction of duties to meet the fluctuations of prices. That it might suit the interests of manufacturers to check importations, but that such a course would ultimately demoralize the whole customs service, and destroy the entire theory upon which it is based as a measure of revenue.

The Secretary thinks that the most effective method is to prevent undervaluations. He says that is being done, and when the proper value is placed upon foreign articles he thinks there will be ample security against glutting the market with foreign merchandise at fraudulent valuations. He says that the correlation of prices is such that between the foreign and domestic manufacturers there is a wide margin, if the real foreign values are placed upon the foreign product. The Department is now enforcing measures to bring about that result. The assimilation of articles at one rate at one time and at another at another time, he thought, did not remedy the matter complained of, but only prolonged and aggravated the subject of complaint.

A meeting on the 20th inst. of the Chicago Railway Club was held at the Grand Pacific Hotel. It was called for the purpose of devising means to abolish coal-stoves from passenger cars. Mr. Rhoads, Master Car Builder of the Burlington Railroad, presided. There were about 50 persons present, and all were of the opinion that the coal-stoves in the passenger-cars must go. But to provide a convenient as well as a comfortable substitute troubled the meeting. However, the majority present were in favor of heating the coaches by steam supplied from the engine. Several speakers said that the plan was a feasible one, and would, when brought to perfection, prevent such harrowing sights as those commonly witnessed in railroad wrecks. A committee consisting of William Forsythe, of the Chicago, Burlington & Quincy, J. M. Barr, of the Rock Island, and C. A. Schroyer, of the Northwestern, were appointed to meet the Eastern Railroad Club in New York and decide upon a uniform system for heating passenger-cars on all trunk line roads. Resolutions condemning the coal-stove were adopted.

The St. James Gazette says the bouquet of iron flowers which the heads of the lead mine "Bismarckshütte" have presented to Prince Bismarck on the occasion of his 55th anniversary as German Minister is said to be of "extremely fine workmanship." The giant bouquet is over 2 feet high, and consists of a branch of oak leaves, with iron acorns, surrounded by twigs of laurel and olive, which again are inclosed by elder-blossoms, lilies of the valley, buttercups, heliotropes, forget me nots, and other flowers, interspersed with sprays of fern and maidenhair.

William H. Harvey, the Secretary and Treasurer of the Commonwealth Iron Company, and a prominent man both in business and society, committed suicide at Cleveland on the 18th inst. For the past two years he suffered from a peculiar brain disease which attacked him periodically, and drove him nearly insane with pain. Lately, and much against the advice of his family and physicians, he used chloral as a means of relief. On Monday he had one of the attacks, and took to his bed. While alone he shot himself through the head, death ensuing in three-quarters of an hour.

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New Liquid Fuel Burner.

(Concluded from page 1.)

Paper Company, at Mechanicsville, N. Y., have been fitted up with the burners which we have described, and, according to all accounts, are giving highly satisfactory results. The Aerated Fuel Company are also completing a plant of 700 horse-power, in one battery, in Springfield, which is to be used in connection with the Holly system of steam heating in that city. The price of the crude oil used averages about 2 cents a gallon, and there are slightly over 6 pounds of oil to the gallon. The complete plant of the Aerated Fuel Company for oil burning contemplates the storage of air under pressure during the day to be used for starting the burners in the morning when there is no steam on the boiler. In fitting up boilers under the Bullard system, the interior of the fire-box is left intact, so that should the supply of oil fail any other fuel can be used.

MANUFACTURING.

Iron and Steel.

Stack No. 2 of the Douglass furnaces of Pierce, Kelley & Co., at Sharpsville, Pa., is being relined and will resume operations in a short time.

A permanent New England agency of the Ellis & Lessig Steel and Iron Company, of Pottstown, Pa., has been established in Boston by Mr. S. R. Reading, one of the company.

Pauly's Jail Works, in St. Louis, an establishment devoted to the manufacture of iron cells for the confinement of criminals, were burned last Saturday, entailing a loss of \$60,000, of which \$45,000 was on stock and machinery. The firm has \$350,000 worth of contracts on hand now. Recently it contracted to furnish iron work for the Government penitentiary in Utah; also the Salt Lake City Jail, and Sherman, Tex., Jail.

An Ironton, Ohio, special says: At 8 o'clock Monday morning a battery of six steam boilers in the Lawrence Iron Works exploded, killing Thomas and Mike Dwyer and two others and wounding 12 persons. Portions of the boilers were blown half a mile away.

Fayette Brown, receiver of Brown, Bonnell & Co., of Youngstown, Ohio, has filed his report in the United States Circuit Court for the month of September. It is as follows: On hand August 1, \$803,431; receipts for the month, \$220,577.63; aggregate, \$229,516.09; disbursed, \$202,338.41; on hand August 31, \$27,177.68.

The 17 ton hammer at the Black Diamond Steel Works, of Park Brother & Company, Limited, at Pittsburgh, was put on three turns on the 24th inst. It has been working double turn for some time, in spite of the strike. There are now many applicants for work, since the touches of cold weather came. The establishment is heavily pressed with orders, especially in the forging departments.

A recent issue of the Johnstown (Pa.) Tribune says: The question as to where the new works of the Johnson Steel Street Rail Company are to be located is understood to be practically settled, the Franklin borough site having been decided upon. The ground is being surveyed and stakes driven, and the construction of the buildings will probably be commenced in a short time. Mr. Johnson has been in the city for several days, and the arrangements concerning the location have been completed during his visit.

The Robinson Rea Mfg. Company, of Pittsburgh, have recently built, from new and improved patterns, two large and unusually powerful roll lathes, especially designed to do rapidly the heavy roll turning required in rail and beam mills. One of these lathes has been sent to the North Chicago Rolling Mill Company, at Chicago, and the other has been placed in the firm's own shops.

An agreement has been reached between the creditors of Alderdice, Bishop & Co., proprietors of the Warren Rolling Mill, at Warren, Ohio, and Henry Wick, of Youngstown, Ohio, and the necessary signatures are now being attached to the contract, which is that Mr. Wick puts in \$20,000 to complete the mill, receives \$4000 per year as its manager for three years, becoming its owner at that time if he has succeeded in paying off the \$105,000 of indebtedness in installments as arranged. It is stated that this is one of the best equipped mills in Ohio.

For some days past a rumor has been extensively circulated in Pittsburgh that Carnegie Bros. & Co., Limited, of that city, were about to purchase the plant of the Duquesne Steel Company, located at Duquesne, about 30 miles from Pittsburgh, and erect a blast furnace, converting department and plate mill to the plant. We are authoritatively informed that there is no truth in the rumor whatever. The Duquesne plant has not been offered for sale to any one, nor have any offers been made for its purchase. We are further authorized to say that all rumors which have heretofore been published regarding the probable disposition of this plant were untrue. The plant is owned by the Duquesne Steel Company, who will operate it or allow it to remain idle, as they may see fit.

A company, to be known as the Continental Steel Car-Wheel Company, of Norristown, Pa., are being organized at Norristown, Pa., for the manufacture of rolled steel car-wheels, under letters patent issued to Col. Theodore W. Bean. The manufacture of steel car-wheels has not been attempted as yet, but according to the statements of those interested in this new enterprise the project is entirely feasible. The working models are all complete, and a location for the plant has about been decided upon.

Messrs. Kramer & Kingsland, proprietors of the Northwestern Crucible Steel Casting Foundry, 46 and 48 West Monroe street, Chicago, report that their business is in

excess of anything they had anticipated in so short a time. They only commenced operations about one week ago, and have already received a number of orders, and turned out many castings. Their foundry has been running to its fullest capacity, and they report the outlook as exceedingly encouraging.—*Industrial World.*

Iron River Furnace, of the Iron River Furnace Company, at Iron River, Mich., after a period of idleness has again resumed operations under the management of Mr. R. Hunt.

The Jefferson Foundry Company, of Chicago, which was incorporated a short time since for the purpose of operating the Jefferson Foundry, at 57 and 59 South Jefferson street, have extended their business by securing control of the Lake Shore Foundry, at 347 and 349 Illinois street, formerly owned by the Mason & Davis Company. A force of 75 men is employed in the new acquisition. The first-named foundry will be exclusively used for the manufacture of light castings, while the other will be devoted to the production of heavy castings. The main office of the company is located at 57 and 59 South Jefferson street. P. H. Meehan is president; J. L. Board, of G. A. Crosby & Co., is treasurer, and Oscar Ludwig is secretary.

The National Tube Works Company, of McKeesport, Pa., have secured an order from the Indianapolis Natural Gas Company, of Indianapolis, Ind., for 20 miles of pipe, to be supplied as soon as possible.

A meeting of the creditors of Robert Hare-Powell's Sons & Co. was held at the office of the firm, 419 Walnut street, Philadelphia, on Thursday afternoon, the 20th inst. Among the most prominent creditors present were: Major Reynolds, of Bellefonte; Hon. John Cessna, of Bedford; David W. Woods, of Lewistown; Samuel P. Brown, of Huntingdon, and W. P. Duncan, of Center County.

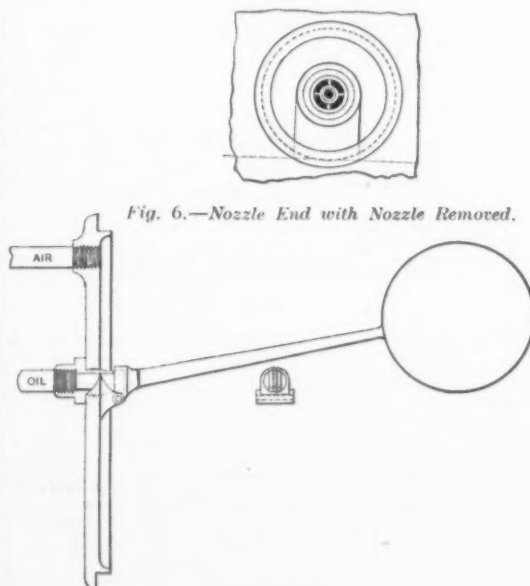


Fig. 7.—Oil Valve and Float.

A NEW LIQUID FUEL BURNER, MADE BY THE AERATED FUEL COMPANY, SPRINGFIELD, MASS.

The latter two gentlemen acted as secretaries, and Mr. E. C. Knight, of this city, was vice president. Lawyer W. W. Wiltbank made a full statement of the assets and liabilities of the Powell firms, showing that the assets were over \$4,600,000, direct liabilities less than \$1,500,000, and indirect liabilities in the neighborhood of \$250,000. The direct liabilities consist of paper indorsed by the embarrassed firms, some of which is expected to be paid and some of which will not be. On behalf of the Powells it was proposed to the creditors that an extension be granted them, by which the bondholders would be paid in five years with interest at 6 per cent., and the unsecured creditors be paid in installments in 10 years with interest at 5 per cent. It was decided to accept this proposition with any modifications which might be suggested by a committee of the creditors to be appointed by the officers of the meeting. This committee was also given authority to call an early meeting of creditors to hear its report. A resolution requesting that the new iron furnace at Saxton be put in blast at once was passed unanimously.

The general offices of the Etna Iron Works Company have been moved from Cincinnati to Alice furnace, at Ironton, Ohio, where a new office building is in course of construction. The two blast furnaces of the above company are in successful operation, producing about 120 tons of metal per day.

Smith & Laughlin, metallurgical engineers, of Pittsburgh, have recently contracted with the Norton Iron Works, of Ashland, Ky., for two of their Smith regenerative gas furnaces and also with the Lake Erie Iron Company, of Cleveland, Ohio, for one of these furnaces. The above firm have just completed the erection of one of the above-named furnaces for the Central Iron Works, at Harrisburg, Pa.

One of the new batteries of boilers in the new steel-rail mill of Carnegie Bros. & Co., Limited, at Braddock, Pa., and one of the new engines were tested on the 22d inst. This battery of boilers is regarded as one of the finest in the world, consisting of 12 single boilers connected by the most recent modern improvements. The mill is now nearing completion, nearly all the machinery being in place, and consists throughout of all the most recent modern improvements, and is claimed to be the finest steel-rail mill in the world. It is expected to be in operation by January 1, 1888.

Machinery.

The Consolidated Coal and Coke Company, of Mc. Olive, Ill., have struck an 8-foot vein of coal, and expect to have the works in

operation by December 1. They have contracted with the United States Scale Company, of Terre Haute, Ind., for railway scales of 50 tons capacity each, and 52 foot platforms, also wagon and miners' scales. Having an independent line of railway of their own (the St. Louis and Chicago Railway) the Consolidated Company will prove interesting competitors of the Jay Gould mines along the Wabash Railroad.

The Fulton Iron Works, the third largest in San Francisco, Cal., burned October 20. The petroleum which has been used as fuel caught fire as it was being put into the boiler. The machine shops, with much machinery, including completed castings for six steam schooners, were destroyed. The loss will probably reach \$200,000. The California Gas Works, adjoining the iron works, were also burned. Loss between \$40,000 and \$50,000.

A dispatch from McDonald, Pa., dated Friday, October 21, says: A company has been organized, with a capital of \$75,000, for the purpose of building a foundry and machine shop to manufacture the Edney coal mining machine. This company is composed of men of capital and experience, one of them being a director of the Philadelphia Gas Company. The only condition they seek to impose is that the company assist them in having gas piped to the town.

The proprietors of the Baldwin Locomotive Works, at Philadelphia, report that the business of that establishment was never greater than now, and that they expect to exceed the last year's capacity in 1887 by 100 locomotives, which will be at the rate of 13 a week. They are employing 2700 hands.

The Harrisburg Car Mfg. Company, of Harrisburg, Pa., write us as follows, under date of October 20: "Business with us is quite active in all the branches. We have recently received a very large order for cars



Fig. 5.—Section of Atomizer and Oil Chamber.

ers and two of the New York Safety Steam Power Company's engines of 80 horse-power; two Yale and Towne 20-ton traveling cranes, and seven swing cranes. They are also building three core ovens, 16 feet wide. Besides this, they are putting up a 3 story building, 80 x 50, for storage of machinery, &c., at a total cost for the whole of about \$100,000. They report business in excellent condition, having several months' work on hand for their full force of about 700 men. They also inform us that the demand for steam hammers and hydraulic riveting machines, with their equipments, is the largest they have ever known.

The citizens of McKeesport, Pa., are about to purchase a 5,000-gallon pump engine for that place, to cost not less than \$20,000, and perhaps \$25,000. The Wilson Snyder Mfg. Company, of Pittsburgh, agree to furnish a 5,000-gallon engine with a 36 inch stroke, outside plunger and air pump for \$17,750, and for a 48-inch stroke they offer to furnish it for 25 per cent. more, or \$22,125. Another company's bid is \$25,000 for the 48-inch stroke, and \$23,500 for the 36-inch stroke. The contract will probably be awarded the present week, and in all probability the Pittsburgh concern will secure it.

The Morgan Engineering Company, of Alliance, Ohio, are building an 80-ton shear for Carnegie, Phipps & Co., of Pittsburgh. They have also under way a large number of traveling cranes for some of the leading works of the country. They have in process of building two cranes for the Cook Locomotive Works, and for the Rodgers Locomotive Works, two for Schribal & Co., Cincinnati, Ohio, for their new works; two for O. A. Bros., one for the Cleveland Shipbuilding Company, one for the Phoenix Iron Company, three for the Pond Machine Company, for their new shop at Plainfield, N. J.; two for the Chester Foundry and Machine

from the car at the point from which the y are used, making the foundry especially convenient. It will be used for making castings for the Myers' pumps and hay tools. They have added to their machine shop two new lathes, one 26-inch swing and one 19 inch swing, made by Lodge, Davis & Co., Cincinnati. They have also added two new mill presses, and made other minor additions.

The Field Force Pump Company, Lockport, N. Y., have recently made a change in the pattern of their Niagara force pump, so that the air chamber is larger, the water reservoir above the spout being also increased in size, thus giving a more even flow of water.

F. A. Tyler, Rome, N. Y., is changing the style of the ornamentation of his flour receptacle and sifter, giving an increased variety of colors. The demand for this article is reported good.

Rowe & Ramey, Indiana, Pa., are negotiating in regard to the manufacture of their Eureka cut off and strainer, and it is intimated that it will probably soon be put on the market by parties well known to the trade.

Miscellaneous.

Among the manufacturing companies recently incorporated in Illinois are the following: Illinois Woolley Electric Motor Company, of Chicago; capital stock, \$100,000; object, manufacture of magnetic electrical engines; incorporators, Clair D. Vallette, Albert N. Eastman and Edward E. Gray. St. Louis Fire Engine Mfg. Company, of East St. Louis; capital stock, \$200,000; object, to deal in and manufacture fire engines; incorporators, Manly R. Vandervoort, John A. Johnson, C. L. Herring, Mabel Mfg. Company, of Peoria; capital stock, \$50,000; object, to manufacture the Mabel Washer; incorporators, C. N. Points, J. E. Garside, E. B. Rhea and W. A. Benbaker. The Pettinger Patent Wheel and Flexible Axle Mfg. Company, of Chicago; capital, \$200,000; incorporators, Fred. W. Stapf, Charles H. Wright and Alexander R. Cayner.

The Missouri Car and Foundry Company, of St. Louis, have recently received an order from the Missouri Pacific Railroad for 500 flat cars.

The following table, taken from the Marquette (Mich.) Mining Journal of the 22d inst., shows the shipments of Lake Superior ore by ports to that date for this season and for the corresponding period of 1886:

Name of Port.	1887.	1886.
Marquette.....	724,218	757,899
Escanaba.....	1,708,956	1,817,677
St. Ignace.....	24,153	64,656
Ashland, Wis.....	978,466	643,011
Two Harbors, Minn.....	344,110	273,737
Total.....	3,829,886	3,456,979

By ranges the shipments have been as follows: Marquette range, 1,575,976 tons; Menominee range, 1,022,679 tons; Gogebic range, 987,134 tons; Vermilion range, 344,100 tons.

The capital stock of the Litchfield Car Company, at Litchfield, Ill., has been increased to \$200,000.

The St. Charles Car Company, of St. Louis, have closed a contract with the Mexican Central Railroad for 250 box cars. The company have also contracts with the Alton, St. Louis and Terre Haute for seven first-class coaches and a number of mail and express cars, and with the Atchafalaya, Tuleka and Santa Fé for 600 coal and emigrant cars.

Steps are being taken by a number of the leading citizens of McKeesport, Pa., to form a Board of Trade at that place.

A dispatch from Wilkesbarre, Pa., dated Thursday, October 20, says: Cox & Bros. & Co., the largest individual operators in the Lehigh region, to-day commenced to operate their mines at Jeddos, Drifton and Eckley. They also entered into a contract with New York and Boston dealers to deliver coal this month. This virtually breaks the big strike, and the 11,110 idle men will have to return to work at the old wages.

Frank H. Clement, manufacturer of wood-working machinery, Rochester, N. Y., has recently added to his line an extra heavy rod and dowel machine, combination saw bench, double-spindle shaper and two sets of hand and pattern-makers' lathes.

The Munson Lightning Conductor Company, Indianapolis, Ind., have recently furnished the new courthouse at Easton, Pa., with their lightning conductors, and report an active demand for their different manufactures.

Dating from the 1st of November there will be an advance in freight on all railroads on iron and steel shipped from Pittsburgh east as far as New York and west as far as Chicago. Circulars to that effect were sent by the different companies to their freight agents all along the lines as far as Chicago and New York. The advance will be from sixth class rates to fifth class. At a meeting held by all freight agents last spring it was decided that, during the time the rivers and lakes were open, the rates should be reduced one class, in order to compete with the river traffic; but, as during the winter time competition is not so large, the fifth-class rates are adopted again.

Car heating by steam is receiving earnest attention, as appears from the discussions last week before the Master Car Builders' Club. R. G. Chase, representing the Williams steam-heating system; J. G. Penfield, the Penfield Heating and Lighting Company; President Martin, the Martin steam-heating system; President Woodruff, the Swell, and Attorney Benjamin, the Wilder system, reported satisfactory progress in equipping trains with their apparatus, and told of unsuccessful tests. Several car-heating and electric lighting plans were explained by their inventors. It was stated by one of the speakers that the stoves and heaters in use in the American railways represent \$1,000,000.

Special Notices.

BUSINESS OPPORTUNITIES.

ATTENTION,

Capitalist - and - Foundryman.

An Incorporated Company offers for sale State Rights to manufacture, and sell a valuable Patent Boiler (for house-heating). Hundreds in successful operation, which can be referred to for full particulars.

Address Box 1006,
WORCESTER, MASS.
New England States reserved.

TO HARDWARE MANUFACTURERS AND CAPITALISTS.

LOCK AND HARDWARE WORKS FOR SALE.

In consequence of the death of our late president and principal stockholder, it has been determined by the Trenton Lock and Hardware Co. to offer for sale their

VALUABLE FRANCHISE,

including Real Estate, Buildings, Machinery, Patterns, Tools, &c.
The works are now in operation and doing a large and profitable business. Their business connections are valuable, and at present the factory is crowded with orders.
For further information, apply at the Office of the Company at Trenton, N. J.
Bids are solicited.

IRON and STEEL MANUFACTURING.

The advertiser wishes to enlist parties who desire to engage in manufacturing, with the view of erecting a plant equal to any in the country. Can offer location where building can be done cheaply; a number of leading railroads for collecting and distributing materials and stock at best rates are available. Cheap coal and fuel gas can be furnished at five cents per thousand feet, and with a complete organization under a perpetual charter with privileges unlimited as to use of capital in manufacturing and mining and all necessary and proper advantages for the association of capital at any desired point.
Or if a better location could be found, the advertiser would make the organization and charter privileges available at such a point, or where parties are already manufacturing or mining, and wish to extend their business. Address

"IRON and STEEL MANUFACTURER,"
Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

VALUABLE IRON MINE FOR SALE.

This property covers an area of 300 acres and exhibits at various points an Ore giving 60 per cent. of iron—furnace best—no sulphur or phosphorus. The property is situated within 10 miles of Ottawa and is most favorably placed for mining operations. The highest reports upon the property have been received from first-class experts. Title perfect. The new Canadian Iron tariff makes this a most valuable property. Samples of the Ore and further particulars can be obtained by applying to the Manager—Ontario Bank, Ottawa, Canada.

FOR RENT.

VALLEY FORGE MILL AND WATER-POWER

(Belonging to Estate of Charles H. Rogers, dec'd.) Situated at Valley Forge, Pa., on the Phila. and Reading Railroad, 23 miles from Phila. The buildings consist of a four-story mill, 100 ft. long, with tin roof, 25 stone Tenant Houses and stone Dry and Dye House. The water power is known as one of the best in the State. The property was occupied for many years as a Woolen and Cotton Manufactory, but is adapted to general manufacturing purposes.
For particulars, address

J. B. CARTER, Hardware Manufg. Agent,
504 Commerce St., Philadelphia.

NOTICE

TO HARDWARE MANUFACTURERS.

If you have any desirable specialties for which you would like to establish an agency in Philadelphia, please address

J. B. CARTER,
Hardware Manufacturers' Agent,
504 Commerce Street, Philadelphia, Pa.

For Sale or Lease.

A SPLENDID OPPORTUNITY FOR FOUNDRYMEN and MACHINISTS to do a large and prosperous business at an extensive and well-understanding plant; the engine works, &c., formerly so well-known at Hartford, Conn., and covering about five acres, are now offered for sale or lease, as a whole or in part. The daily use of the valuable patterns belonging to these works would be in itself a source of large yearly income. For full particulars and for circulars describing the property, apply to H. B. BEACH & SON, Agents, Hartford, Conn.

AGENTS WANTED

TO SELL SPECIALTIES IN MUNICIPAL SUPPLIES: Street Names, House Numbers, Mark Notices, &c. on Enamelled Iron. Illustrated catalogue.

F. E. MARSLAND,
84 West Broadway, New York.

FOR SALE, A CLEAN

STOCK OF HARDWARE AND IRON,

In a city of 40,000 people, best manufacturing city in Ohio; established trade of 60 years; best room and location in city; stock about \$11,000 or \$12,000. Reason for selling, have the "California fever." Address Box W, office of *The Iron Age*, 66 and 68 Duane St., New York.

FOR SALE.

The old WHITE RIVER ROLLING MILL, at Indianapolis, Indiana; consisting of Bar Mill, Guide Mill, Muck Mill (no Squeezer), Old Rail Shears, a large amount of Furnace Plates, Floor Plates, an assortment of Rolls, seven old Boilers, four Engines, &c. Correspondence solicited. Address

NEW ALBANY RAIL MILL CO.,
New Albany, Indiana.

WANTED.—A WELL-INFORMED MAN to

take the place of a partner recently deceased, in a well-established Carriage Hardware Business located in one of the best cities of Southern New York. Address HARDY & SLAYMAKER,
Elmira, N. Y.

FOR SALE.

MACHINE SHOPS. Fine buildings, extensive machinery, foundry, patterns, large grounds, railroad track, clear title; a great bargain, \$30,000.
C. H. SMALL, Pueblo, Col.

A YOUNG MAN of business experience would purchase an established Hardware business or part of same, in a small city; address with full particulars, "WEBSTER," office of *The Iron Age*, 66 and 68 Duane St., N. Y.

Special Notices.

BUSINESS OPPORTUNITIES.

FOR SALE.

ROLLING MILL!

Will be sold publicly to the highest bidder, on the premises, the industrial plant known as

SWIFT'S IRON AND STEEL WORKS,

Situated in the City of Newport, Ky., opposite the City of Cincinnati, Ohio, on the east bank of Licking River, within a thousand yards of the Ohio, comprising 3 acres of land, including the buildings, structures, machinery, fixtures, and appurtenances thereto belonging and in connection therewith.
The sale will be made on the premises, beginning at 10 o'clock a. m.,

On Saturday, December 17, 1887,

On a credit of 6, 12, 18, 24, and 30 months' equal payments—no cash down.
The Master Commissioner of the Campbell Chancery Court will make the sale under a judgment of said Court, rendered on the 16th of September, 1887, in the action of Adam Wagner, Assignee of Swift's Iron and Steel Works, and John Trapp, against Swift's Iron and Steel Works and others, No. 3,321. There will also be sold at the same time and place on a credit of 6 months all the personal property belonging to the concern, including raw and manufactured material, coal, coke, horses, mules, &c.
The purchaser will be required to give bond for the purchase money, payable to the Master Commissioner, bearing 6 per cent. per annum interest from the day of sale, with approved security.
The mill is covered with an iron roof, and contains:

One 3-inch guide roll train, with fly-wheel, center-shaft, plates and shears, with all the rolls, &c.
One 12-inch train, fly-wheel, plates, shears and all the rolls, &c.
One 18-inch bar train, with all the rolls, &c.
One fire-bed mill and shears, with two pairs 46-inch chills, and one pair 60-inch soft rolls.
One plate mill, with pinion, three 62-inch chills, and two pairs 82-inch soft rolls.
Six-foot plate shears, with spare all steel knives, and small clipping shear for scrap.
One muck train, with three stands, housings, pinions and squeezer, underground shafting, two pairs of spare rolls.
One muck mill, two sets rolls and pinions, two pairs spare rolls and squeezer.
Sheet train, three stands, rolls and crane, with two sets spare rolls.
Nine boiling and one heating furnaces, with stack, boiler and connections and tools and fixtures.
Two sheet and two pairs heating furnaces.
Annealing furnace, brick building.
One 36 x 36 piston-valve engine, fly-wheel, gearing, doctor pumps, &c.
Eight 42-inch diameter double-flue boilers, 24 feet long, mud and steam valves, &c.
Bar mill engine, two band wheels, &c.
Seventeen boiling, two scrap, two slab, two annealing, one pair heating, two bar, one 10 and two 8-inch mill heating furnaces.
Black furnace, stack with hot air, casting house, five 40-inch diameter 60 feet long boilers, &c.
One new blowing engine, steam cylinder 36 x 48, blast cylinder 84 x 48, draft stack, &c.
Holding river crane, with foundation, two double engines, hoisting machinery, &c.
Twenty-four coke ovens.
Blacksmith and carpenter shops, scales, trucks, shears, shafting and every appliance ordinarily used in the operation of a rolling mill.
The mill is doing a prosperous business, and is running full time, with a good trade, and will be delivered to the purchaser in running order and running.
By a switch running to the yard the mill is connected with all the railroads entering into Cincinnati, in addition to the advantages and conveniences of the Ohio River.
For more specific information apply to
G. ARTHURMAN, Master Commissioner,
Campbell Chancery Court,
NEWPORT, October 17, 1887.

WIRE MILL FOR SALE.

Sealed bids will be received by the undersigned until Wednesday, November 2nd, at 12 o'clock noon, for the plant, fixtures and machinery of the wire mill of Kraft, Gross & Co., incorporated, situated on the Des Moines River at Joliet, Ill. The mill has a capacity of eight tons per day, is in perfect order, and thoroughly equipped with the most improved machinery and appliances for drawing, annealing and galvanizing wire. The mill is operated by both water and steam-power, the water-power being 250 horse power, and is being leased having five years to run, with the privilege of extending the time ten years longer, at the option of the lessee. There is also a quantity of wire rods and wire in the process of manufacture, together with other material necessary to operate the mill. Bids may be made for the entire plant as it stands, including the material on hand and the water privilege, or for the plant, machinery, tools, material, lease, and water privilege separately. A description of the property will be sent on application. All bids must be for cash. The right to reject any and all bids reserved.
Address L. SOULE, RECEIVER, Joliet, Ill.

THE ROVER IRON COMPANY

with all its Property and Railroad at Roanoke City, Va., FOR SALE.

The valuable property of the Rover Iron Company of 3601 acres of mineral lands, a narrow gauge railroad, six miles long and 21 acres of land within corporate limits of Roanoke City will be sold at Roanoke, Va., on WEDNESDAY, NOVEMBER 16th, 1887 at public auction. Terms, one-third cash, residue in one and two years with interest from day of sale. For particulars, address
JOHN E. PENN and LUCIAN H. COCKE, Com'rs,
Roanoke, Va.

A VALUABLE BLAST FURNACE AND IRON

MINE, situated at Moslem Berks Co., Pa. thirteen miles from Reading, on the Schuylkill and Lehigh branch of P. & R. R., for sale. Consists of an Anthracite Blast Furnace, 40 ft. in diameter of bosh; two Hot Blast Castings House Engines, Machinery, &c., with railroad track connecting with main road.
Also, a valuable mine of fine Hematite Ore, known as the "Moslem Iron Ore Bank," with Engine, Machinery and Pumps for mining and washing. 10,000 tons per annum usual output.
Also, Grist Mill, Hotel Stand and many other valuable buildings.
The property covers an area of over 600 acres. Will be sold at low price and on accommodating terms. For particulars, apply to
DR. T. H. SEFFERT,
1700 Mt. Vernon Street,
or MR. H. G. STELWAGON,
633 Vine St., Philadelphia, Pa.

FOR SALE to close a partnership interest. All

that valuable leasehold property in the city of Baltimore, Md., together with the extensive MACHINE SHOPS, AND FOUNDRY OF GEORGE PAGE & CO., located thereon, with the Machinery, Patterns, Tools and Materials now in use in the manufacture of Steam Engines, Boilers, Saw Mills and other machinery. If not sold before the 30th day of November, 1887, the property will be sold on that day at public sale at the Exchange Sales Room, 125 East Fayette Street, Baltimore, Md. For prices, terms and more full description, address
GEORGE PAGE & CO.,
14 North Schroeder Street, Baltimore, Md.

PARTNER WANTED.

In an established metal business in a large Western city a Partner is wanted who thoroughly understands the manufacture of all kinds of mixed metals, with a capital of about \$3000. For particulars, address
"METALS," office of *The Iron Age*, 66 and 68 Duane Street, N. Y.

Special Notices.

BUSINESS OPPORTUNITIES.

FINE OPENING FOR A FOUNDRYMAN.

In consequence of the death of the manager a fine Foundry and Machine Shop, doing a large business at Birmingham, Ala., is on the market

Address BOX 603, Birmingham, Ala.

FOR SALE OR TRADE.

A STOCK RANCH, consisting of 1000 acres of land, well watered, with 200 acres of fine bottom land, valued at \$25,000. Will trade for a stock of hardware, with a good established trade, or an interest in a manufacturing business, or any good established business, and pay any difference up to the amount of \$15,000 in cash. This is one of the best Ranches in Southern Kansas. For further particulars, address "B," P. O. Box 697, Atchison, Kas.

HELP WANTED.

Undisplayed Advertisements for Help Wanted not exceeding fifty words One Dollar each insertion. Additional words two cents each.

FIRST-CLASS TRAVELING SALESMAN.

None except those experienced and having a good trade in Imported Hardware and Cutlery need apply. "A. H. K.," box 18, Office of *The Iron Age*, 66 and 68 Duane Street, N. Y.

A TRAVELING SALESMAN in general hard-

ware for Central Indiana and Illinois; one acquainted with the trade preferred; if not acquainted, must have a satisfactory record in other territory. No applications will be considered unless accompanied by references. Address JOHN M. WALKER, Office of *The Iron Age*, 66 and 68 Duane Street, New York.

BRASS FOUNDRY FOREMAN to take charge

of a large foundry, producing hardware castings of all kinds, including fine ornamental bronze work. Address, stating age, experience, references and salary expected, THE YALE & TOWSE Mfg. Co., Stamford, Conn.

A FIRST-CLASS SALESMAN to sell extreme

Southern trade, by Eastern hardware manufacturing and jobbing house. Address "SOUTHWEST SALESMAN," Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

WANTED.—SALESMEN, in every part of the

United States and Canada, to handle goods on liberal commission. We desire to cover well the whole territory. Goods well known. Business heretofore done mostly through mail. None but first-class men need apply, giving references. A first-class line of hardware specialties. Address "B," Carrier 30, Cleveland, Ohio.

LIVE, ENERGETIC SALESMEN to handle Bab-

bit Metals, Solders, Ingot Brass, Brass Castings, &c., &c. Salary or Commission. E. A. C. DEPLA, N. E. Chicago, Ill.

TRAVELING SALESMEN WANTED.—COM-

PETENT, ENERGETIC AND PUSHING SALESMEN to sell a line of special goods well known to the Hardware, Stove and House-Furnishing Trade; must be familiar with the Hardware Business, and experienced in selling goods on the road, and furnish first-class references. Other lines not conflicting can be taken. Liberal commission. Address "Box 141," Manchester, N. H.

TRAVELER to retail TABLE and POCKET

CUTLERY to the retail trade in the Eastern States on commission; also one each for New York State, Pennsylvania, Ohio, Indiana and Michigan; only those needed answer who have an established trade and who wish to add above goods to their line. Address "CUTLERY," Box 272, Office of *The Iron Age*, 66 and 68 Duane St., New York.

SITUATIONS WANTED.

Undisplayed Advertisements for Situations Wanted not exceeding fifty words Fifty Cents each insertion. Additional words one cent each.

FURNACE MANAGER AND CHEMIST having

extended experience, running both coke and anthracite furnaces, making Bessemer and other grades pig, desires an engagement. Compensation, salary or tonnage, or will base on fuel consumption. Address "EAST," Lock Box 1086, Philadelphia.

BY A PRACTICAL MAN, a situation as FORE-

MAN MOULDER of an iron foundry; has had large experience as such in the making of all kinds of machinery, large and small. Understands all branches of the business thoroughly, and fully competent to take full charge of an iron foundry of any size or any class of work and run it to a profit. Best of reference.
"FOREMAN MOULDER,"
Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A YOUNG MAN, experienced in designing gen-

eral and special machinery, buildings and motive-power plants, and the erection and maintenance of the same, would like to correspond with parties needing such a man with A 1 references. "AMERICAN," 445 Broad Street, Newark, N. J., Room 5.

A COMPETENT AND RELIABLE ROLL

TURNER wants a responsible position. Will be at liberty 3 o'clock. Best of reference. Address "A. B. E." Office of *The Iron Age*, 66 and 68 Duane St., N. Y.

A YOUNG MAN, a graduate of Harvard College

with knowledge of Analytical Chemistry, wants a position as ASSISTANT CHEMIST in a first-class laboratory connected with blast furnaces, iron foundry or steel works. Will volunteer his services for the sake of practical experience to be acquired. Address "E. J. M.," 131 Broadway, Cincinnati, Ohio.

A GENTLEMAN who has had an extensive

business experience and who possesses business abilities of a high order, would like to make an arrangement to take charge of a Chicago Agency for some first-class Eastern manufacturing firm. Best of references, both East and West. Address "H. L." Office of *The Iron Age*, 66 and 68 Duane Street, New York.

PRICE BOOKS.

LARGE SIZE, 500 Pages, 6 x 9 1/2 in. each, \$3.00.
POCKET SIZE, 250 Pages, 4 x 7 in. each, \$4.00.
Send for Circulars.

B. LAMBERSON,

PORTLAND, OREGON.

EUGENE BISSELL, Auctioneer.

HAYDOCK & BISSELL,

Successors to
ROBERT R. HAYDOCK & Co., and E. BISSELL & Co.,
WHOLESALE
HARDWARE AUCTIONEERS,
19 Murray St. and 15 Park Place, N. Y.
Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

FOR SALE, CHEAP.

15 CARS,
9 feet and 12 feet long, made to fit track 2 1/2 feet wide. Address for particulars
CUSHMAN & CO.,
"METALS,"
10 Old Slip, New York.

Special Notices.

MACHINERY.

BARGAINS

IN SECOND-HAND AND NEW

MACHINE TOOLS.

PLANERS.—Second hand.

120x20x4 New Haven. Good order.
125x25x5. Good order.
120x25x7 Thayer and Houghton. Good order.
130x30x9 New Haven. Good order.

PLANERS.—New.

120x30x4 Williams.
124x24x6 Pease.
130x30x8 Pease.

LATHES.—Second hand.

119x8 Lodge, Barker & Co. Good order.
120x8 1/2 field. Good order.
120x12 New Haven. Good order.
120x22 Fitchburg. Good order.

LATHES.—New.

112x36 bet. Centers Sebastian, May & Co. Eng. Lathe.
114x40
117x43 Lodge, Davis & Co. Engine Lathe.
117x43 Muller Machine Tool Co. Engine Lathe.
1 each 10x11, 13, Lodge Davis Engine Lathe.
1 each 21x19, 11, 13 Lodge Davis Engine Lathe.
1 each 15, 16, 19 Lodge Davis Turret Lathes.
1 Star Plain Hand Lathe.
1 1/2x6 F. E. Reed Engine Lathe.
1 1/2x12 Dustin Mfg. Co. Engine Lathe.
1 1/2x12 Perkins Engine Lathe.
1 1/2x12 Lodge, Barker & Co. Engine Lathe.

DRILLS.—Second hand.

1 each 20x24 Bickford Drills. Good order.
1 1/2-inch S. F. Drill. Good order.
1 1/4-spindle Drill. Good order.

DRILLS.—New.

3 1/2-inch Lodge, Davis & Co. No back gears.
1 each 20, 24, 30 and 38 L. D. & Co. Upright B. G. S. F.
1 1/2-inch Lever Feed Drills.
Post Drills, all sizes.

MISCELLANEOUS.

1 Sellar's Car-Wheel Borer. Second-hand. Good order.
1 1/2-inch Durkee Shaper. Second-hand. Good order.
1 1/2-inch Shaper. Second-hand. Good order.
1 Slab Miller. Second-hand. Good order.
1 1/2-inch Drop Hammer. Second-hand. Good order.
1 1/2-inch Hammer. New.
1 each Wells Bros. and National Bolt Cutters. New.
1 Pulley Balancing Machine. New.
1 1/2-inch 10-inch Boynton & Plumer's Shapers. New.
1 each 6 and 20 inch Friction Shapers. New.
1 1/2-inch 1/2-inch and 1/2-inch Keyseaters. New.
1 Fox Wood Trimmer.
Grinding Machines, all sizes, Diamond Machine Co. New.

Write for Prices. It will pay you.

LODGE, DAVIS & CO.,

Cincinnati, O.
Manufacturers of Engine Lathes, Shapers, Drills, &c. Dealers in Iron and Brass Working Machinery.

PROPOSALS for three Overhead Traveling

Cranes complete, three supports for such Cranes, and one Iron Frame for a Building.

NAVY DEPARTMENT.

WASHINGTON, July 23, 1887.

Sealed proposals will be received at the Navy Department, Washington, D. C., until 12 o'clock noon, on Thursday, the 13th day of September, 1887, at which time and place they will be opened in the presence of bidders, for furnishing the necessary material and labor, and constructing, delivering and erecting the iron-work for the supports of three overhead traveling cranes, the frame of one building, and three overhead traveling cranes complete, including attachments pertaining thereto, for the Ordnance Gun Shops at the Navy Yard, Washington, D. C., in accordance with plans which may be seen, and specifications, copies of which, together with all other information essential to bidders, may be obtained at the office of the Civil Engineer at said Navy Yard. Proposals must be made in accordance with forms, which will also be furnished on application to that office.

Proposals must be made in duplicate and enclosed in envelopes marked "Proposals for Overhead Traveling Cranes complete, for Iron Supports for such Cranes, and Iron Frame for a Building," and addressed to the Secretary of the Navy, Navy Department, Washington, D. C. The Secretary of the Navy reserves the right to reject any or all bids, as, in his judgment, the interests of the Government may require.
WILLIAM C. WHITNEY,
Secretary of the Navy.

NAVY DEPARTMENT.

WASHINGTON, September 12, 1887.

The time for receiving proposals under the foregoing advertisement is hereby extended until Tuesday, the first day of November, eighteen hundred and eighty seven, at 12 o'clock noon, at which time the bids will be opened.

JOHN G. WALKER,
Acting Secretary of the Navy.

SPECIAL.

Bolt and Nut Milling Machines.

See *The Iron Age*, September 22.

Bolt and Nut Machinery.

130-in. x 16 ft. Engine Lathe.

130-in. x 14 ft. "

1 1/2-in. Horizontal Boring Mill.

10 16-in. Swing Engine Lathes.

10 14-in. "

Nicholson & Waterman,

Providence, R. I.

NOTICE.

XX INDIA LEAD.

We have put up special machinery for the pulverizing of Pure India Lead into an impalpable powder. For further details it has no equal; also used as a stove polish and for lubricating purposes. SAMPLES sent FREE on application.

ALSO

Manufacturers of all kinds of FOUNDRY FACINGS AND SUPPLIES, dealers in and shippers of MOLDING SANDS.

J. W. PAXSON & CO.,

1015 North Delaware Avenue, Philadelphia.

FOR SALE.

Blowing Engine, new and first-class; Steam Cylinder 36 in. diam.; Blowing Cylinder 84 in. diam.; Stroke 48 in.; Weight 71 tons. Can ship in ten days' notice.

CLEVELAND SHIP BUILDING CO.,
Successors to Cuyahoga Steam Furnace Co.,
Cleveland, Ohio.

FOR SALE, CHEAP.—A good second-hand

Blast Furnace

BLOWING ENGINE, HORIZONTAL.

MERWIN MCKAIG, Cumberland, Md.

A LARGE DEANE STEAM PUMP, 24-inch steam

and 20-inch water cylinder, in good order; other sizes of Knowles, Blake, Cameron and Worthington Pumps. F

Exports

P O S T E R

the port of New York; for the week end-

Argentine Republic		New Zealand.	
Quan.	Val.	Quan.	Val.
Mach'y, pkgs. 10	\$2,825	Pumps, pkgs. 18	\$550
Hdw., cs.	107	Nails, cs.	75
Guns, cs.	3 301	Revolvers, cs.	15
Ag. imp., pkgs. 47	1,043	Gun mtl, cs.	1 175
Amsterdam.		New Zealand.	
Pumps, pkgs. 5	325	Sew. mch., cs. 36	470
<i>Antwerp.</i>		Ag. imp., pkgs. 12	292
Mach'y, pkgs. 6	398	Mf. iron, pkgs. 1	235
Pumps, pkgs. 2	170	Hdw., cs.	191 236
Mf. iron, pkgs. 1	32	Nails, cs.	94 232
Guns, cs.	3 450	Writers, cs. 23	354
Hdw., cs.	26 345	Cutlery, cs.	115 135
Berlin		Clocks, cs.	1 556
Mach'y, pkgs. 2	250	Brass dish	
Jap. iron, cs. 14	140	cks.	11 330
Breslau.		Not Brunswick.	
Sew. ma., cs. 32	600	Tin crystals,	
		kegs.	2 78
British Possessions in Africa.		Oporto.	
Mf. iron, cs.	271 4,059	Mf. iron, pkgs. 39	360
Ag. imp., cs.	3 108	Porto Rico.	
Nails, kegs.	231 557	Ag. imp., pkgs. 1	17
Air guns, cs.	1 36	Mch'y, pkgs. 3	190
Mf. iron, pkgs. 30	199	Mf. iron, pkgs. 77	366
Sew. ma., cs.	35 1,555	Nails, kegs.	77 184
Cutlery, cs.	18 1,175	Copper goods,	
Cartridges cs. 2	392	kegs.	1 15
Mach'y, pkgs. 2	230	Nails, cs.	4 13
Brazil.		Arms, cs.	1 19
		Hdw., pkgs.	51 575

Sew. ma., cs. . . 17	383	Sew. ma., cse. . . 1	12
		Cutlery, cs. . . 14	156
Bremen		Tacks, cs. . . 2	12

Hdw., cs.,	6	670	Pumps, pkgs.,	3	17
Tin bronze,			Tinware, cse.	1	29
cks.,	2	440			
Mf. iron, pkgs	12	228	<i>Peru.</i>		
Sew. ma., cse	1	25	Mf. iron, pkgs.	29	277
Mach'y, pkgs.	17	1,750	Cartridges, cs	4	72
			Brass goods.		

<i>British West Indies,</i>	case	1	9
Nails, kegs. . . 100 . . . 300	Clocks, cs.	3	65

Mf. iron, pkgs	100	383	Firearms, cs.	2	74
Agg. imp., pkgs	16	106	Hdw., pkgs.	20	438
Clocks, cs., ...	21	430	Imp., pkgs.	11	11
Hops, ...	58	807	Sew. ma., pkgs	17	350
Pumps, ...	8	26			
Sew. ma., cs., ...	11	132	<i>Rotterdam</i>		
Saw teeth, bx.	1	50	Cop., casks	18	2,500
Tinware, cs.	3	26	Copper, bbls.	45	5,625
Iron drums	262	630			
Match y., pkgs.	14	589	<i>Stockholm</i>		
Nails, ...	1	92	Pumps, bbls.	1	100
Bell, ...	1	92	Hdw., cs.	50	700
<i>British Guiana</i>			<i>Stuttgart</i>		
Nails, kegs	40	40	Gas pump, ...	1	80
Hdw., cs.	5	92			
			<i>Sandwich Islands</i>		
<i>British East Indies</i>			Cutlery, cs.	4	368
Hdw., cs.	?	170	Agg. imp., ...	24	41
Clocks, pkgs.	60	1,380	Agg. imp., ...	35	103
Clocks, cs., ...	100	1,519	Mf. iron, pkgs	339	3,063
Sew. ma., cs., ...	2	40	Sash weights,		
			14	60

<i>British Australia.</i>	steel pinions.	15	1,224
	Y. metal cs..	12	597
Hdw. pkgs.	Mach'y pkgs.	6	1,283

M ^d . iron, pkgs.	338	2,623
Axes, ca.	11	492
Clocks, pkgs.	436	9,785
Tin boxes, cs.	41	307
Nails, bags	69	689
Brass goods, case	1	20
Tacks, cs.	11	90
Gum printers,		
case	1	81
Metal goods, case	1	15
Wringers, ca.	35	159
Nuts, cs.	8	529
Tinware, ca.	38	159
Sew. ma., cs.	10	390
Nail y's, pkgs.	80	9,945
M.C. copper sh.	2	70
St. G. C. t. g.	24	528
Rabbit metal, cs.	2	12
Nails, cs.	43	263
Iron Cov wells	2	19
Pumps, pkgs.	5	216
Steel, pkgs.	37	174
Nails, kegs.	1,292	3,736
Car wheels	30	1,500
Tacks, cs.	10	176

Uruguay.

Mach'y, pkgz.	1	320
Hdw., cs.	2	14
Tinware, ca.	2	91

**United States of
Colombia.**

Wire'd ga. cbs.	1	5
Idw. pkgs.	83	1,880
Idw. pkgs.	136	1,782

Ag. imp. pkgs. 183	5,722	Mach'y pkgs. 22	489
Guns, cs. . . . 18	1,936	Nails, kegs.... 3	8

Cutlery, cs.	61	574	Chain, length.	2	21
V. equipped,			Cartridges, cs.	3	30
case, cs.	1	22	Steel, pkgs.	516	1,042
Car-wheels...	250	2,500	Sew. ma., cs.	30	354
Pumps, pkgs.	20	916	Cutlery, cs.	26	310
Sew. ma., cs.	4	54	Ag. imp., pkgs.	6	167
Bolivia.			Brass goods,		
Firearms, case	1	145	Iron, pkgs.	1	111
Barcelona.			R.R. car...	87	145
Revolvers, cs.	2	97	Nails, cs.	1	1,800
Sew. mach., cs.	2	21	Wash. mach.	11	189
Hdw., cs.	7	29	Arms, cs.	2	101
MF. iron, pkgs.	1	344	Clasps, pieces	600	1,711
Brussels.			Brass, pieces	600	1,071
Mach'y, pkgs.	3	450	Vienna.		
Sew. ma., cs.	60	690	MF. iron, pkgs.	2	25
Chile.			Venezuela.		
Tinware, cs.	6	102	Ag. imp., pgs.	1	2
Pumps, pkgs.	2	25	Nails, boxes...	3	7
Mach'y, pkgs.	3	211	Cartridges, cs.	2	48
Ag. imp., cs.	1	250	Sew. ma., cs.	31	700
Fire-arms, cs.	3	251	Nails, keg...	1	3
Cutlery, cs.	7	122	Cuba.		
MF. iron, pkgs.	8	80	Ag. imp., pkgs.	155	30,988
Adz., cs.	69	1,069	Steam pumps	4	1,541
Ag. imp., pkgs.	124	1,764	V. boxes...	1	4
Hdw., cs.	5	70	C. pump...	9	1,392
Nails, cs.	10	223	Ag. imp., pkgs.	30	806
Sew. ma., cs.	90	450	Iron, pkgs.	430	1,291
Clocks, cs.	4	180	Cutlery, cs.	60	1,319
Tin, case...	1	5	Nails, cs.	44	111

Mf. iron, pkgs	3	57	Hdw., pkgs...	27	485
Clacker, pkgs	25	1,240	Mf. iron, pkgs	1450	7,929

Clocks' pages.....	65	1,549
Hdw., cs.,	1	240
Central America.		
Hdw., pgs., ...	30	436
Mach'y, pgs.	11	669
Sew. ma., cs.	1	127
Steel, cs., ..	2	43
Quicks'r, f'sks	100	4,136
Mf copper, cs.	1	83
Firearms, cs.	1	132
Wd. wheel, ...	1	384
Pumps, pgs.	2	303
Juna, cs.,	1	15
Butlery, cs., .	3	62
A gate ware, ..	1	10
Mn. iron, pgs.	355	1,403
Axis,	30	240
Nails, kgs., ...	4	10
Liverpool.		
Mach'y, vtrs.	15	1,120
Buenos Aires.		
Car. tubes, cs.	1	40
Cop-wheels, pr	654	6,294
Tunware, cs., .	9	317
Spikes, cs., ..	42	141
Boilers,	3	39
Dublin.		
Hdw., cs.,	8	100
Dutch West Indies.		
Mf. iron, pgs.	33	135
Tunware, cs., .	5	25
Hdw. pgs., ...	9	76
Pumps, pgs.	2	23
Clocks, pgs., .	1	39
S. nails, bds.,	1	15
Sew. ma., cs.	1	156
Ecuador.		
Clocks, cs., ..	1	55
A gate ware, ..	4	64
Carditres, cs.	5	58

Hdw., cs.....	15	294	Hdw., cs.....	15	543
Cop. mtl sks.....	1638	116,625	Cutlery, cs...	113	2,137

Locks, cs.,	58	984	Quicksilver, flask,	1	40
Braas goods,			Sew. ma., cs.,	23	633
cs.,	70	4,389	Guns, cs.,	1	17
Mercury, cs.,	1	260	Mf. iron, pkgs	13	76
Sew. ma., cs.,	9	115	Steel, bbls.,	5	80
Wire, bbl.,	1	100			
Mf. iron, pkgs	5	115			
Met. w'e, cs.,	5	82			
Leith.			Flume.		
			Mach'y, pkgs 668	16,534	
			French Possessions		

Idw., cm., . . .	2	101	<i>in Africa.</i>	
<i>Madrid.</i>			Clocks, case..	1 25

Pumps, pkgs.	5	250	French West Indies.	
Mexico.			Sew. ma. cs.	5 150
Hdw., pkgs.	93	1,095	Glasgow.	
Cutlery, cs.	15	299	(Clocks, pkgs.)	20 312
Spring, cae.	1	159	Sew. ma. cs.	12 3,051
Nails, kgs.	33	69	Sheet iron, pk.	2 50
Nails, cae.	1	4	Hdw., pkgs.	10 375
Cartridges, cs	8	235	Mach'y, pkgs.	30 815
Revolvers, cs	7	4,635	Havre.	
	15	830		

Mf. iron, pkgs.	443	8,849	Hdw., cs.....	4	1,182
Mach'y, pkgs.	272	6,080	Copper, bbls.	45	5,625

Clamp, pks. 15	114	Mac'y, pkgs. 8	1,057
Clocks, cks. 13	233	Ag. lin. pkgs. 22	1,706
Clocks, kgs. 36	192	Clocks, cs. 9	525
Corn, pkgs. 669	935	Sew. ma., cse. 1	25

Exports of Metals from October 18 to October 24, inclusive.

	Pounds.
Copper Matte: Williams & Terhune.....	3,343.046
Copper: American Metal Co.....	75.755
Lead : Atlantic White Lead Co.....	112.070



THE WEEK.

The abolition of contract labor in the Western Penitentiary of Pennsylvania, in accordance with a law of the last Legislature, sends 700 convicts into a condition bordering on solitary confinement. In the State of New York it is noticed that cases of insanity among unemployed convicts are not infrequent.

Boston papers say the Massachusetts factory employment law recently enacted is vague and open to question as to its practicability. As important interests are involved, the State inspectors are moving cautiously.

A disastrous cattle venture in Texas is among the enterprises that have more or less embarrassed Chas. G. Franklyn, of steamship fame, and on account of which Sir Bache Cunard commences an action in the courts to recover \$3,000,000 claimed to have been advanced for investment. Mr. Franklyn, according to a report from Kansas City, formed the Franklyn Land and Cattle Company, purchased and fenced in 600,000 acres, and bought some 60,000 head of cattle, paying therefor at least \$1,250,000, giving a mortgage both on land and cattle to secure an unpaid balance. When the "round up" was had only about 6000 head of cattle could be found, although the tallies called for 60,000. What became of the difference is a mystery.

The New York Corporation Counsel decides that the recently constructed third track on the elevated railroad is without authority and beyond the right conferred by the charter of either the New York or Manhattan Company.

The Sing Sing State Prison foundry employs 450 men and turns out 200 complete stoves a day, worth about \$630.

The Germans are energetically extending their lines of steamships in every direction, more recently to the coast of Africa and La Plata, in South America, besides which regular service is proposed between Singapore and Sumatra, also extensions to the West Indies and Mexico. The idea seems to be to meet British competition. Meanwhile, merchants in the United States are spectators.

A St. Paul dispatch speaks of a serious threatened disturbance in merchandise traffic in that section, caused by the Manitoba railway's extension into Montana as far as Great Falls. The newly published rates are 50 cents per 100 pounds less at the eastern boundary of Montana than those of the Northern Pacific, and at Great Falls are \$1 less, the Northern Pacific rate to Glendive from St. Paul being \$2.02, and to Helena \$3. The new rates will be met by the Northern Pacific some time in the immediate future, but probably not until the Manitoba reaches Helena, about January 1. If these rates are cut down the long and short clause of the Interstate Commerce law requires the rates to be scaled down at all intermediate points, which would have a serious effect on rates throughout transcontinental territory from Canada to the Gulf.

Detailed accounts respecting the Chinese syndicate, apparently sanctioned by Wharton Barker, of Philadelphia, one of the principals, speak of the supplementary negotiations as still in progress through the Chinese Minister at Washington, and with promise of complete success. The organization, however, will not be fully shaped for at least six months to come. In any case, the public is informed, it cannot reach its final stage without becoming a subject of international pressure and intrigue. In such a contest England and France are certain to oppose the new enterprise, nor will it be strange if Germany and Russia are at last found supporting it.

Commercial union with Canada is urged by Erastus Wiman with untiring persistency. After addressing the Canadian Boards of Trade on this subject, Mr. Wiman now writes to the New York daily newspapers in furtherance of the scheme, saying that there is a profound conviction in the minds of a great majority of the solid men of Canada that if by the free admission of American products of all kinds, if by giving up access to her fisheries, her forests and her mines an equally free access would be afforded to American markets, and the closest commercial relation be created with the American people, Canada would be benefited to a greater extent than by any other policy. The advantage to the United States would be that her trade would become continental in its area; that without the expenditure of a dollar free access would be had to a people who, though only 5,000,000 in number, have in the face of a high tariff absorbed American goods to the extent of \$50,000,000 per annum, as against \$60,000,000 absorbed by the entire 50,000,000 of people to the south of this country. That this business would be enormously increased under the altered circumstances proposed no one, he says, for a moment doubts.

General Master Workman Powderly expresses himself well satisfied with the work of the Minneapolis convention. In reference to the abolition of the assistance fund, Mr. Powderly says this action will be beneficial. "It will tend to take the premium off of strikes. Men will have to have very grave reasons now before they will walk out, knowing that they can expect no financial aid from the organization. I have noticed

that there is a gradual tendency all over the country for employers and employees to get closer together. When the fact is known that the organization has refused to render financial aid in case of a strike the employers will necessarily gain confidence and will feel disposed to do better by the men employed by them. I do not look for any serious labor difficulties during the coming year. I don't think there will be any great strikes. If any difficulty arises it will be settled by arbitration. It is the easiest way out of a difficulty."

In Pittsburgh, 19th inst., the Albemarle Hotel and other buildings adjoining were damaged to the extent of \$25,000 by a natural gas explosion. One man was killed and several more were severely injured. The accounts generally agree that workmen who were making a pipe connection allowed the gas to escape until the cellars of buildings adjacent were filled. When a torch was brought near the explosion occurred.

The United States Assay Office, in Wall street, had in its vaults a few days ago \$76,900,000, or more than double the amount in store a year ago. All foreign coin and bullion received goes directly to the melting pot and is made into bars from 900 to 998 fine. The Government stamp put upon the bars makes them readily current on the other side.

The New York Dock Commissioners expect to get a revenue of \$105,000 per annum from the contemplated improvements on the North River side, between Harrison and Hubert streets, comprising five piers. The expenditure, including the widening of West street, will be \$941,750. On the east side the improvements will cost near \$1,500,000, and the estimated income \$120,000.

The Louisiana sugar refiners do not intend that Congress shall lose sight of their interests while discussing the Hawaiian treaty, sugar trusts and the interests of refiners.

The Carriage Builders' Association, which met in Washington last week, adopted the following unanimously: "Believing that the mechanical schools already established in connection with the common schools are doing silent but important work, and believing that their increase would greatly benefit the productive interests of this country, we would therefore urge upon the boards of education of the different States the necessity of increasing the number of these schools, and of making them more useful by the appointment of mechanics as instructors in the use of tools."

Boston papers notice the progress being made in the extension of the Canadian Pacific Railroad across the northern wilderness of Maine, but whether the Atlantic terminus will be at St. John, Portland or Boston is yet a question. The entire work will be completed one year hence, and may prove to be a sharp competitor with the United States trunk lines. President Sewall, of the Maine Central, said, over a year ago: "The Canadian Pacific is going to be a dangerous competitor with the trunk lines east of the Mississippi, and it is going to revolutionize the transcontinental railroad traffic in the United States."

A St. Petersburg correspondent of the Manchester Courier speaks of a new compound produced there in imitation of caoutchouc. It seems that it is made of hare skin, rabbit skin, &c., and that these are previously cleansed and boiled down with 5 per cent. of glycerine and as little water as possible until the whole is dissolved. Of this mixture three parts are melted with three parts of raw glycerine, and to this is added one-fourth part of a solution of bichromate of potash. It is then cast in molds and left to dry in a dark and well ventilated place. The articles produced with this preparation have a remarkable resemblance to vulcanized india-rubber, yet they are capable of much greater resistance to heat. If the substance is required to be very hard, less glycerine and more bichromate of potash is used, and in this case the objects are dried under pressure between metal plates. By the employment of coloring matter it is easy to produce imitations of coral, malachite, &c.

The Mexican Government has begun the erection of a big custom-house at Paso del Norte, which will cost \$150,000.

Some 300,000 acres of pine lands in Wisconsin, recently declared forfeited and opened by the Government for general settlement, have been claimed with eagerness by settlers from other parts of the State, and a large proportion has already passed into private hands. There are quarter sections of 160 acres said to contain standing pine valued at \$50,000.

Japan ships large quantities of matches to China, principally from the port of Hiogo.

Cheap cattle, wheat, corn and hogs and a heavy lumber production are the burden of complaint in the West. The lumber receipts at Chicago are 127,000,000 feet in excess of last year's.

The Minneapolis exposition closed a few days ago, after remaining open 40 days, during which time the attendance was 425,000, and the receipts amounted to \$105,000. The first opening was in 1886, when the attendance of visitors numbered 338,000.

A dispatch from the capital of Manitoba says that, in spite of the opposition of the Dominion Government and the Canadian Pacific Railway, the line from Winnipeg to the United States boundary is to be built. Work, which had been stopped for two

weeks by lack of funds, is to be resumed immediately. The projectors claim to have obtained \$600,000—the amount required—and represent that if the rails now held in bond by the Canadian Pacific line are not released the needed material will be furnished by several American roads.

An iron column, 23 feet long and weighing over 6000 pounds, part of a new lighthouse being built, was recently landed at Bishop Rock, England, and, a storm coming up, was left lashed by a half-inch chain at each end to strong eyebolts. Three days afterward the workmen returned and found that the column had been tossed up by the waves 20 feet to the top of the rock, where it was swaying about like a piece of timber. Two days afterward, when they were able to land, the workmen found that a blacksmith's anvil weighing 150 pounds, which they had left in a hole 3½ feet deep and 2½ feet in diameter, had also been washed by the waves completely out of the hole.

The latest scheme before the Congress of the Argentine Confederation, and which gives promise of being carried into execution, the only question being the ability of the Government to float loans in Europe, is the construction of a railway from the banks of the Paraguay River, nearly in front of Asuncion, to Bolivia and Peru, say 1855 miles, at an estimated cost of \$90,000,000. It is to pass through Potosi, La Paz and Oruro, meeting the Arequipa (Peruvian) Railway at Puno. At present Bolivia pays \$36 per ton on merchandise to or from the Pacific port of Cobija, or £32 by way of Rosario. The charge on the proposed line would be less than half. The contractors are the Messrs. Clark, who have had large experience in South American railway construction.

The increasing activity in business pursuits is shown by the annual report of the Western Union Telegraph Company, which last year had an increase of over 4,000,000 in the number of messages, the largest ever reached in one year with a single exception. The gain was chiefly in the Pacific Coast business. Nearly 5000 miles of line were added, of which 2000 were by purchase. By the acquisition of the Baltimore and Ohio system the company's plant will be swelled to about 162,000 miles of lines and over 580,000 miles of wire. The capital stock of the company is now \$86,200,000.

The beef supply in the principal cattle-grazing States of the Northwest will fall short one-third next year, so it is stated, on account of the severe drought that has prevailed through a large section all summer, compelling owners of cattle to rush them prematurely into the market. Wisconsin, Illinois, Iowa and Kansas have suffered most from this cause, Arizona and New Mexico alone being more fortunately situated than others in the range. At the close of the year the markets will probably show aggregate receipts of 3,600,000 head of cattle. Of these at least 1,000,000 head should have gone over another year. Another explanation of the present rush to market and the prevailing low prices is that cattle grazing has been overdone.

The American consul at Shanghai has addressed to the State Department an important communication—how manufacturers in the United States waste their resources on useless advertising and trade circulars. Much enterprise is shown in the effort to introduce new descriptions of merchandise acceptable to the Chinese, and under the classification of "sundries" considerable amounts are imported. Inquiries for information are constant, with reference to furthering the interests of manufacturers. To illustrate the ignorance frequently shown, the case is noticed of a New York carriage manufacturer who recently sent out an elaborate and expensive price list to all open ports and some interior towns in China addressed "To the leading carriage dealer of _____," although, excepting near the foreign settlements, there are no carriage roads in the Empire, and consequently no more demand in China for carriages than there is in the United States for clumsy sedan chairs. Another case is that of a hardware firm who recently sent out a large number of circulars addressed: "Leading hardware dealer, Zuanchow." Supposing that such a place existed, China not having as yet come into the Postal Union, there are no means of forwarding unpaid mail matter, except to the treaty ports; and as the circular was in English, the "leading hardware dealer" in some walled city a thousand miles from the coast, if the circular had found him, would be unable to understand a word of it.

The Stock Yards Company, of Chicago, in friendly co-operation with the railroad managers, have arranged to do their own switching hereafter. The ostensible reason given is to save expenses, but the real object is to avoid future difficulties from strikes. So long as each road did its own switching the switchmen on any one of the lines could stop the traffic by refusing to perform duty and boycotting such lines as aided the line on which the strike prevailed.

The final session of the General Assembly of the Knights of Labor was held in Minneapolis, Minn., 19th inst. No change was made in the General Executive Board, the co-operative board or other general officers. The resignations of General Master-Workman Powderly and other members of the executive board were not accepted. The General

Executive Board is to have nothing to do with strikes unless called upon to interfere by the district assemblies or national trade assemblies involved. The Knights of Labor in parade are to carry nothing but the State or national colors. The rule prohibiting the sale of liquor at picnics was sustained by a vote of 104 to 49. The Committee on Appeals and Grievances reported the charges against General Secretary Litchman as groundless. A motion to provide for granting charters to Chinese assemblies was lost, it being regarded as detrimental to the order in the West. The Committee on Finance recommended economy for the coming year. The next convention will be held in Indianapolis.

A striking fact in the trade of San Francisco is that the value of merchandise received from Japan is more than twice that of the imports from China and equal to one-third of the total valuation of the goods entering that port.

Major Jones, of the United States Corps of Engineers, who has had charge of sluicing the bar in the Columbia River, at St. Helena, has completed the work of cutting a channel 200 feet wide and 20 feet deep across the bar. This gives a channel 22 feet in depth at high tide from Portland to the sea.

One of the big bridges of the world will soon be ready for traffic. This is the iron railroad bridge across the Missouri a few miles below Kansas City. It is 7392 feet long, is 50 feet above high water, with towers reaching to a height of 200 feet.

The largest day's clearance of flour on record was made from this port, 20th inst.; namely, 47,930 sacks and 10,220 barrels, or equal to over 62,000 sacks. This is not a spasmodic movement, either, as the exports of flour have been increasing almost as rapidly as those of wheat are decreasing.

The consumption of ice in New York City and its environs during the past season comprised 2,500,000 tons. About 400,000 tons are left over on the Hudson River. The average price in this city was \$1.50 per ton on the scales.

Four walking delegates of the Central Labor Union were accused of conspiracy by Robert C. Hollister, of Elizabeth, N. J., on Monday, at Jefferson Market Police Court. They are Robert J. Armstrong, of the carmen's union; Owen Harney, of the varnishers union; Edward McLaughlin, of the painters' union, and Peter J. Kiernan, of the encaustic tile layers' union. They were each held in \$700 bail.

Engineer Monocal, of the Nicaragua Canal Company, is making arrangements to send out eight engineering parties to locate the canal, leaving Greytown next month. He expects the work of excavation will begin not later than July 1. A syndicate of New York, Baltimore and Richmond gentlemen have the matter in charge. The total cost is estimated at \$65,000,000.

A steamer at Port Townsend, Washington Territory, from Alaskan ports, brought a party of miners from the Yukon River, where about 300 men have been at work, averaging \$9 a day for each man in the gravel and placer diggings. Heavy snow compelled them to quit about the middle of October. The value of the productive industries of Alaska for the past 12 months is estimated by Governor Swineford at \$6,150,000.

The American beef pool made the first of its experimental shippings from Colorado to Chicago last week. The pool representatives believe that they will be able to show a profit of probably \$1 a head over what they would receive in the present extraordinarily low open markets on the hoof. It is stated that if these shipments show even a very small profit per head over the open market sales, the great majority of the cattlemen in the range and feeding districts will sign pool contracts and ship to the pool slaughterer. In case the shipments show even this small profit, the pool officers will immediately go to work in both the range and feeding country to perfect arrangements for next season.

The American Federation of Labor now has its headquarters in New York City. Its present membership is 575,000, drawn largely from the Knights of Labor. There has been an increase of 37,000 members since June 15 of the current year. The per capita tax of members of the institution is ½ cent per month.

A communication signed by 14 commercial associations of Boston has been received by the Interstate Commerce Commission, antagonizing the project of the Boston Chamber of Commerce, which claims that the practice of allowing an export rebate upon flour, grain, provisions and produce shipped from the West via Boston to foreign ports is an unjust discrimination against local consumers and seeks to have the practice stopped. The communication says: "We view with apprehension any change which would compel the export trade to pay more upon merchandise shipped by way of Boston than is paid upon like shipments via New York, as any greater charge would practically ruin our export trade, both foreign and coastwise, and would seriously interfere with the commercial interests of our city."

The Piedmont Exposition at Atlanta, it is reported, netted a cash profit of \$10,000 besides paying over \$150,000 for the build-

ings and grounds. This success has caused a plan to be started for a World's Fair there in 1899.

The annual meeting of the great ordnance, engineering and shipbuilding firm of Armstrong, Mitchell & Co. was addressed by Lord Armstrong, who spoke of the two cruisers recently sent out for the Chinese navy as being, in point of speed and offensive power, superior to any vessel of the same class now afloat. Their size is remarkably small in relation to their speed and power. Their tonnage is only 2000, while the mean speed they have attained is about 18½ knots per hour. They are very heavily armed, each carrying three guns of 8¼ inches and two of 6 inches, besides an exceptionally powerful armament of torpedoes, Hotchkiss guns and Gatling guns. Their coal capacity is also so great that, starting with their bunkers full, they could cover a distance of no less than 11,000 knots without recaling.

The grand scheme of the Peruvian bond holders in which Michael P. Grace, of New York, figured conspicuously, is declared to be a thing of the past. The Peruvian ministry declined to submit to Congress, on account of the hostile attitude of Chili, who protested against several of the provisions of the proposed arrangement, especially a clause which was construed as making Chili liable for the bonds in a certain contingency, whereas in the treaty of peace with Peru it was expressly stipulated that all her obligations to the creditors ceased with the delivery of a certain portion of the net proceeds of the guano deposits. This contract contained enormous grants of privileges, such as the monopoly of banking, railroad, express, telegraphs and other business. The syndicate was also to receive part of the customs revenue of Peru. Practically the grant surrendered Peru to the Grace syndicate. The consideration to be paid by the syndicate for these remarkable concessions was \$50,000,000. The Chilians appear to have regarded the scheme as a bold push on the part of Peru for a restoration of her independence.

The Question of a Coke Syndicate.

Henry Clay Frick, the well-known coke operator, of the Connellsville region, returned to Pittsburgh last week after a foreign tour of three months' duration. As will doubtless be remembered by our readers, Mr. Frick resigned the presidency of the H. C. Frick Coke Company last June, on account of the granting an advance of 12½ per cent. to the coke workers, which was against Mr. Frick's wishes, and caused the dissolution of the coke syndicate. Now that Mr. Frick and Mr. Andrew Carnegie have both returned to Pittsburgh, the question has arisen: Will the syndicate be formed again, and on what basis? As is well known, Mr. Frick controls but one-third of the interests of the H. C. Frick Coke Company, the other two-thirds being controlled by the Carnegies, who also use about the same proportion of coke produced by the Frick Company, the balance being consumed by the North Chicago Rolling Mill Company. To make the matter more complicated, the workers in the employ of the H. C. Frick Coke Company are working under a scale of wages which is binding on both sides till January 1, 1889. The other operators have persistently refused to sign this scale, with the result that great dissatisfaction at present exists among the balance of the workmen in the region. All sorts of rumors were in circulation last week in Pittsburgh as to what action would be taken and how the question would be settled. It is stated that Mr. Frick is anxious to join a syndicate and that the Carnegie firm are opposed to any such action. A well-known operator has stated his views as follows, and he may possibly be right in his conjectures. He said:

"I am convinced, in fact I know, that Messrs. Frick and Carnegie mean to do the best thing possible for their own interests and those of the region generally. Mr. Frick is aware that there must be a syndicate if operators are to make anything like a success of their business. He, however, has only one-third interest in the coke works with which he is identified. Carnegie & Co. own the other two thirds. Frick has nothing whatever to do with the iron and steel interests of Carnegie & Co., and this compels him to depend entirely on the coke business. Carnegie & Co. can afford to buy their own coke at low prices, because it will lessen the cost of production of their iron and steel, and thus they are gainers. Frick, however, will be a loser. This is how the matter stands, and one of two courses must be taken. The most probable course is to the following effect: Carnegie & Co. will allow Frick to have the worth of his share of the works in property, and he can control it himself. That is, he can have one-third of the ovens and mines under his own control, and Carnegie & Co. the two-thirds. Carnegie & Co. can then be an independent, or, in other words, an ineffective firm in the coke business. Frick can join a syndicate that is sure to be organized. The syndicate will sign a contract with Carnegie & Co. to buy all their surplus coke; that is, all coke that the firm cannot use in their own iron and steel works. The syndicate will also agree to supply Carnegie & Co. with the coke they want at syndicate prices. This course, which seems to be the wisest, may probably be taken. Up to Saturday last no meeting of the members who compose the old syndicate had been held, and of course it is impossible to tell what will be done when a meeting is called. It is probable that a meeting will be held the present week. At all events, the developments of the next few days will no doubt be of considerable interest to the producers as well as to the consumers and workers."

The art of paper making has reached a point where a tree may be cut down, made into paper, and turned out as a newspaper in 36 hours.

Barney & Berry's New Skate.

Barney & Berry, Springfield, Mass., for whom Pope & Stevens, 114 Chambers street, New York, are agents, are putting on the market this season the American Rink Skate, which is represented in the accompanying illustration, which indicates clearly

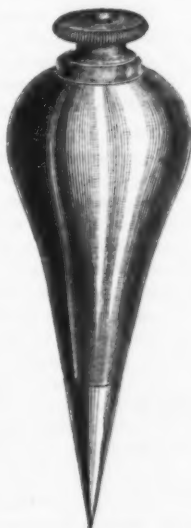


Barney & Berry's New Skate.

its special features and manner of operation. The skate is adjusted, it will be perceived, by a thumbscrew at the heel, and secured by a lever operated under the instep. Attention is called to the fact that all parts can readily be removed and cleaned, and are interchangeable with other sizes of this skate. No. N is polished and nickel-plated, described as made of best material, blades of welded steel, tempered by their patent process. No. T is made bright or nickel-plated, the heel and foot plates, toe clamps and brackets being crucible cast steel. This skate has been remodeled since last season, and in the form in which it is now made is placed on the market with special claims for its convenience and security.

Perfect Plumb Bobs.

The Moore & Barnes Mfg. Company, 103 Chambers street, New York, are putting on the market a line of plumb bobs, which they designate as above, one of which is shown in the accompanying illustration. As will be inferred from the cut, the plumb bob has a screw top through which the cord passes,



The "Perfect" Plumb Bob.

there being inside a hollow for the knot. These goods are made of bronze, beautifully finished, with fine steel points, and are put on the market as positively accurate. They are made for mechanics' and surveyors' use, the illustration representing, in three-fifths size, mechanics No. 6, weighing 15 ounces. For mechanics' use seven sizes are made, ranging from 1 ounce to 1 1/2 pounds, and for surveyors' use, of similar but modified pattern, 9 and 12 ounce. The manufacturers lay emphasis on the absolute accuracy of these plumb bobs, as well as their attractive and artistic appearance.

Novelties in Indurated Fibre Ware.

The Union Indurated Fibre Company, of No. 110 Chambers street, New York, are calling the attention of the trade to their line of Christmas novelties, of which they offer quite a variety. They consist of waste paper jars, two sizes, plain and decorated; also umbrella stands, dull finish and full

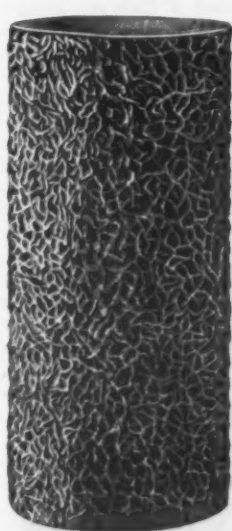


Fig. 1.—"Pa Crusta" Umbrella Stand.



Fig. 2.—Waste Paper Jar.



Fig. 3.—Full "Finish" Umbrella Stand.

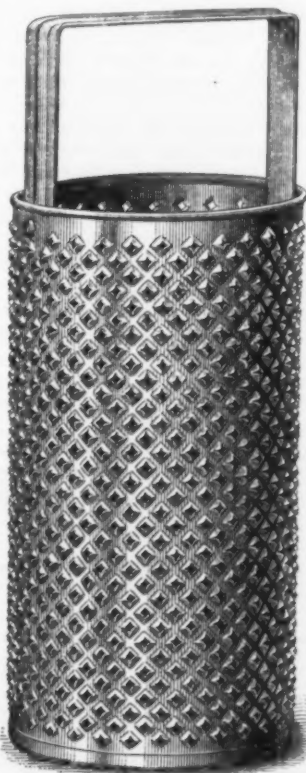
finish, plain and decorated. Some of these goods are shown in the accompanying illustrations, Figs. 1, 2 and 3, which represent them, omitting, of course, the color in the decorated goods. These articles are described as a serviceable, as well as an attractive, line of goods. The plain articles for home decorations are alluded to as particularly attractive to amateur artists, as they are susceptible of almost any style of

decoration. They possess the qualities of the other goods manufactured by the company, being light, seamless, impervious to water and practically indestructible. The point is made that they do not require the constant care and polishing of the brass goods, and that they do not break, as the porcelain. Special at-

tention is called to the Pa crusta decoration, which is shown in the umbrella stand, Fig. 1. The same decoration is also applied to waste paper jars. Some very attractive cards in color are issued by the company, representing these goods. Flower baskets and jars will soon be offered in the same style of decoration. Slop jars have also recently been put on the market, three sizes being made. The non-absorbent qualities of the fibre ware are referred to as making it especially adapted for this use. The prices at which the goods are offered are also referred to. For information on this point the Trade Report may be consulted.

Potato Masher.

Paine, Diehl & Co., Philadelphia, are putting on the market the potato masher represented in the illustration given below. It is of perforated tin of the form indicated, the entire outside surface being a coarse



Paine, Diehl & Co.'s Potato Masher.

grater. It is intended to be used upon the potatoes in the kettle or saucepan, pressing downward and at the same time slightly turning or twisting it among them. Some of the potato is thus forced into the inside of the masher, and can then be readily turned out into a dish, and that in the pot or saucepan will be, it is claimed, as thoroughly mashed as that which has passed into the masher. This manner of treating potatoes is said to have advantages over putting them through a press, while the liability to have lumps in the potatoes under the old method of treatment is avoided, the use of this masher rendering them perfectly free from lumps and light and dry. The facility

New Sad-Iron Heater.

A new revolving sad-iron heater is being introduced by the Susan R. Knox Revolving Sad-Iron Heater Company, for which Jackson & Stephens, No. 7 West Fourteenth street, New York, are the manufacturers' agents. The heater is of a kind to fit upon any kitchen range or stove. It consists of a four-sided cone with rollers, and so constructed as to be readily managed wherever placed. The first engraving shows the heater without the irons, while the second

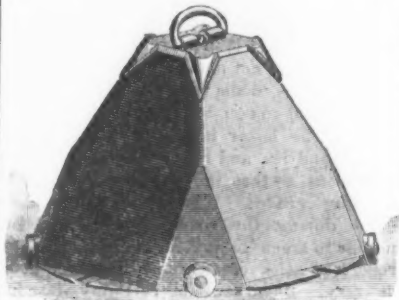


Fig. 1.—General View of the Susan R. Knox Sad Iron Heater.

shows a sectional view and indicates its construction. A rim of the right shape to receive the casters or rollers is laid upon the stove, with a flange extending downward into the opening of the stove. The heater is put in place covering the opening and allowing the heat from the fire to ascend inside of the dome. The rim referred to facilitates turning the heater and holds it in proper position over the fire. One of the advantages claimed for the device is that it keeps the face of the irons from direct contact with the fire, and thus makes it impossible to have their smooth surface spoiled or to have holes burned in them, which sometimes occurs, as irons are ordinarily used. It is needless to say that they are also kept clean from grease, dirt and soot. The weight of the irons is so distributed about the opening of the stove as to prevent the stove covers from being bent, which sometimes occurs where irons are heated on the top of the stove. The space occupied by a set of irons in use is only equal to the lid opening of the stove, leaving the remainder of it free for

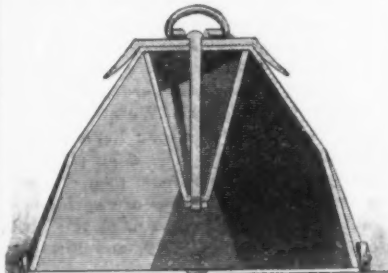
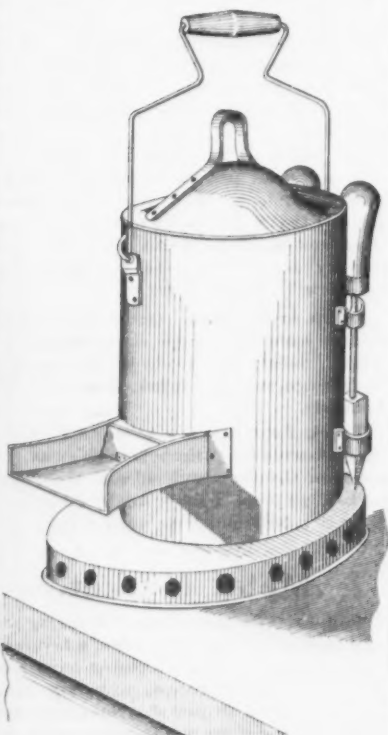


Fig. 2.—Vertical Cross-Section through Sad Iron Heater.

cooking, a fact that will be appreciated by housewives generally. The device, as shown in the first of the accompanying engravings, is adapted for holding four irons, and will receive either the ordinary handled irons sold by the trade generally or special shaped irons like the Mrs. Potts. The same device is adapted for use upon oil and gas stoves.

Tinners' Fire-Pot.

A correspondent of *The Metal Worker*, writing on the above subject, says: I have noticed a number of different ideas concerning tinners' fire-pots. I inclose a drawing of one which our shop employs



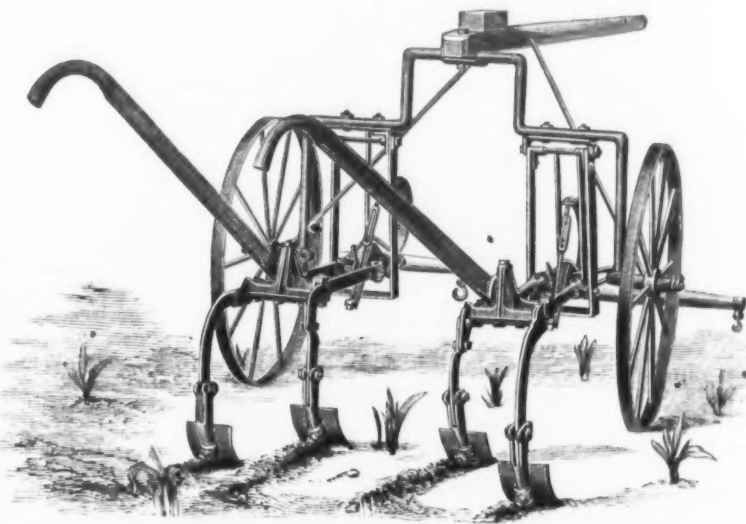
Tinners' Fire-Pot.

and one that I designed for the purpose. With reference to this article, it may be remarked, in the first place, that it is neat and, at the same time, strong. Second, it is convenient in every respect. Referring to my sketch, it will be noticed that it is covered with a plain raised lid, with a high top handle. It is so constructed that it can be completely closed up; accordingly, there is no danger of fire caused by carrying it through a building. On the other hand, when it is put away at night, it is also shut up, which extinguishes the fire, and renders

it perfectly safe. The construction of the bail is somewhat peculiar; there are some advantages about it. First, a bail wood is employed, and the bail is so bent that it is impossible for the wood to come in contact with the side of the pot and become charred. The ears, to which the bail is attached, are put front and back of the pit, and not at the side, as is usually the case. Arranged in this manner, there is no danger of the fire-pot tipping when the irons are in place in the pot. When they are not in use, they may be put into the rack, as shown in the drawing. Instead of making the pot round, I constructed it in oval form, making it about 7 inches in diameter from front to back, and 6 inches from side to side. The base I construct, as shown in the drawing, making it oblong, about 10 x 6 1/2 inches. I think that the drawing will be self-explanatory as to other features. In the construction of my pots, I usually employ Russia iron, on account of the greater durability and the finer appearance.

New Cultivators.

The accompanying illustrations, Figs. 1 and 2, represent the Corn King and the Queen cultivators, which have recently been put on the market by the Kimberlin Mfg. Company, Indianapolis, Ind. In relation to these im-

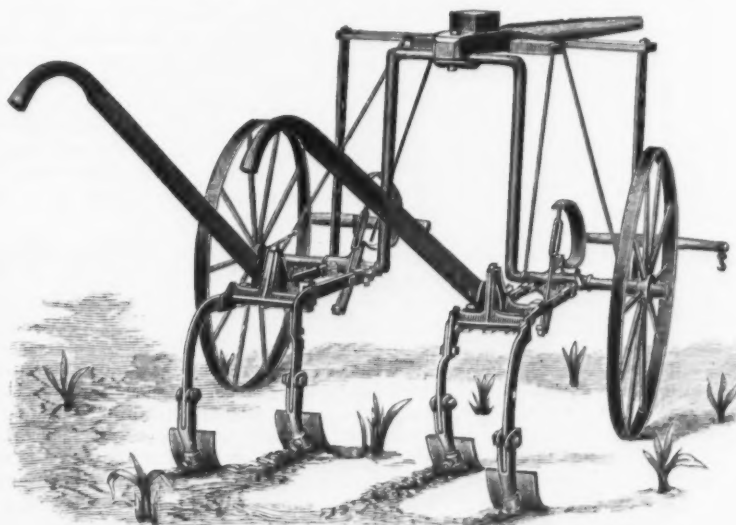


The Corn King.

plements the manufacturers refer to the fact that for some years there has been an increasing demand for a vibrating arch in a cultivator, which has led manufacturers to bring out such an arch, but it was not quite satisfactory, as in vibrating the wheels ran forward or backward, binding the cultivator frame. With a view to remedying this difficulty they have brought out their Corn King, which is represented in Fig. 1, and has, it will be observed, a swing suspended from the arch for the purpose of giving the plows a perfect and easy vibration. The arrangement for attaching each horse direct to his own plow is referred to as securing a very light draft and compelling each horse to do his share of the work. The point is also made that in hitching each horse direct to his own plow there are practically two well-arranged double plows, without any weight on the horse's neck. The gangs are constructed as represented, with a view to

fixed respectively for these defenses. The actual result was that every boat of the flotilla was adjudged to be out of action long before it had arrived within the distance fixed upon as effective. The condition which proved fatal was the one which ruled them out for being under an effective fire during 15 seconds while within the beams of the search light. Captain Bunce made a very judicious maneuver by shifting the position of his vessel, just before sunset into more open water, thus requiring a modification of the courses to be taken by the boats shortly before the attack began. But the great work was done by the search light, which picked them out rapidly and caused them one after another to be disqualified.

The value of the electric light in aiding the defense of vessels against surprises by torpedo boats is demonstrated by this attack upon the Atlanta. The ease with which boat



The Queen Cultivator.

keep the shovels square in the ground, always presenting a full face to the soil and enabling the operator to see what he is doing. The spring works independent of the swing for the beams, and is referred to as easily adjusted by means of a turn-buckle, and combining exceptional efficiency. The manner in which this cultivator is constructed, both as to the quality of the material and the excellence of the finish, is also alluded to, with reference also to the light draft and strength and durability. The Queen, which is illustrated in Fig. 2, has, it will be observed, many of the features of the Corn King, but is, it will be seen, a different implement. The points made in regard to it are: That the shovels are always in direct line with work; that the beams have a broad and secure bearing on the axle, giving them a steady movement; that the spring as constructed is simple and efficient; that in adjusting the width between gangs the spring and its bearing follow the gang, the spring always being exactly in its place, and not twisted, as in other machines, thus preserving its free action. These cultivators have been tested, and are put on the market with confidence that they will fill a demand.

after boat was detected at a distance sufficient to allow its disabling was remarkable. The great value also of rapid-fire cannon in defense against torpedo boats was practically shown. But the question of the effect of attack by swift modern torpedo boats and by self-moving torpedoes, which can be sent under water from a long distance, must wait for demonstration until such appliances have been obtained. The new torpedo boat lately called for by Secretary Whitney is to have a speed of at least 22 knots. It will be seen in how brief a time such boats could dash across an interval of half a mile, and with what danger a large flotilla of them could invest a war ship.

The Southern Railway and Steamship Association have issued a circular on pig iron freights from Birmingham, Ala., and Chattanooga, Tenn., to take effect November 1. It does not differ from that published in *The Iron Age* of September 29, 1887, except that a rate of \$2.60 is made from Birmingham and Chattanooga to Memphis, Tenn., and the rates to Millboro', Ohio, are changed to \$4.10 from Birmingham, and to \$3.60 from Chattanooga.

LONDON, WEDNESDAY, October 26, 1887.

Trade Report.

Welded Galvanized, 45 %; Butt Welded Black, 45 %; Butt-Welded Galvanized, 35 %; Boiler Tubes, 45 %.

Nails.—Nothing of importance has transpired in this department since our last report. Price is quoted at from \$2.10 to \$2.25, with possibility of concessions on carload lots.

Chicago.

Office of The Iron Age, 95 and 97 Washington St., Chicago, October 24, 1887.

The current of trade during the past week has moved along uneventfully, the leading features of the local market continuing in all material respects the same as noted during the preceding two or three weeks.

Pig Iron.—The demand is not quite so active as it has been, although there are still frequent calls for small lots for early delivery. Trade seems to be relapsing into the quiet condition usually prevalent at this time of the year. Consumers generally have all the iron they need, and prices continue steady on the basis of our previous quotations. The strength of the market just now arises from the position of the furnaces; they seem to be delivering their iron as rapidly as it is made. Occasionally a weak seller can be found who is willing to make a concession for a good-sized order, but no general tendency to weakness has yet been manifested, notwithstanding the feeling of consumers that prices will soon be reduced. This feeling is aggravated by the unfavorable reports in the daily papers about the condition of the various branches of business, although locally the evidences of declining prosperity are not apparent, and there are, in fact, very few discouraging circumstances. Cash quotations continue as follows, f.o.b. Chicago: Lake Superior Charcoal, Nos. 1, 2 and 3, \$22 @ \$23; Alabama Car-Wheel, \$27; Tennessee Car-Wheel, 23.50 @ \$24; Tennessee Charcoal Foundry, No. 1, \$22 @ \$23; Missouri Charcoal, No. 2, \$22.50; Jackson County Softeners, No. 1, \$22 @ \$22.50; American Scotch, No. 1, \$22.25 @ \$22.75; Lake Superior Coke, No. 1, \$22 @ \$22.50; No. 2, \$21 @ \$21.50; Anthracite Foundry, No. 1, \$22 @ \$23; Hocking Valley, No. 1, \$21.25; No. 2, \$20.25; Coke Bessemer, run of furnace, \$22 @ \$22.50; Southern Coke, No. 2, \$21 @ \$21.50.

Bar Iron.—Prices have not regained their firmness, although a fair volume of business has been transacted during the week and a number of orders for Carwork are known to be on the carpet. Hope is entertained that the placing of these orders will improve the condition of affairs by taking the most anxious sellers out of the market. Common Iron, not guaranteed, can be had all the way from 1.00¢ down to 1.80¢ in carload lots, f.o.b. Chicago, while Good Muck Bar Iron is held at 1.95¢ @ 2.05¢, same delivery. Stores are quoting 2.10¢ @ 2.25¢, according to quantity and quality.

Structural Iron.—The demand keeps up very well, notwithstanding the lateness of the season. Angles are quoted at 2.50¢ @ 2.65¢, according to quantity, f.o.b. Chicago; Steel Angles, Common Iron, 2.45¢; Tees, 2.80¢ @ 2.85¢; Universal Plates, 2.65¢ @ 2.70¢; Beams and Channels, 3.40¢ for large lots from mill, and 4¢ to 4.5¢ more from store.

Plates.—A fair demand is reported for both mill and store lots. Some good sales of Tank have been made at 2.50¢, delivered on cars at Chicago. The mills are getting into shape now to make satisfactory deliveries, but seem to have enough work to keep prices steady. Store quotations are as follows: Nos. 10 to 14 Sheet Iron, 3¢; Tank Iron, 2.80¢; Shell, 3.25¢; Steel Shell, 3.50¢; Flange Iron or Steel, 4¢; Steel Firebox, 4.5¢.

Sheet Iron.—Manufacturers' agents are constantly in receipt of inquiries for small lots for mill shipment, which are now very difficult to place, as most mills have their full capacity under contract to the close of the year. Mill prices are consequently very firm on a basis of 3.10¢ at mill for No. 27. Jobbers are having a very good trade at present, but report no change in prices, which they quote on a basis of 3.50¢ for No. 27, with concessions of 10¢ @ 20¢ for 100, according to quantity.

Galvanized Iron.—This branch is in excellent condition, so far as the demand is concerned, both as regards manufacturers' agents and jobbers. The store price of Galvanized Iron is still 60 ¢ off for Juniata and 62 1/2 ¢ off for Charcoal, with a slight concession for large quantities.

Merchant Steel.—No new developments are reported under this head, trade continuing fair for store lots. Quotations range from 7 1/2 ¢ to 8 1/2 ¢ for Ordinary Tool Steel, and 13 ¢ @ 25 ¢ for specials; Crucible Sheet Steel, 7 ¢ @ 11 ¢; Bessemer and Open-Hearth Machinery, 2.75 ¢ @ 3 ¢.

Steel Rails.—A few orders are in sight, aggregating less than 10,000 tons, for delivery toward the close of the year, but orders for next year are still being held back. Meanwhile the local Steel works are running along as actively as ever on the work they have in hand, and their product for the current month promises to be the largest they ever attained. Quotations

range from \$38 to \$39 for standard sections, according to the position of the mill quoting.

Old Rails and Wheels.—The nominal quotation for Old Rails is \$23.50, although no sales are reported and the supply is limited. Old Car-Wheels are quoted at \$21 @ \$21.50, but no transactions have come to light.

Scrap Iron.—A fair amount of business is reported in Cast and a little in Forge, Mill, Borings and Turnings. Nothing has been done in Steel, which has for some time been wholly neglected. Quotations continue as follows for carefully selected Scrap: Net ton of 2000 lb.: Railroad Shop, or No. 1 Forge, \$21 @ \$22; Railroad Track, \$19.50 @ \$20; Mill Iron, or No. 1 Wrought, \$16 @ \$17; No. 2 Wrought, Tank, Flues, &c., \$13.50 @ \$14; Light Wrought, \$10; Machinery Cast, \$16; Stove Plate, \$12; Cast Borings, \$10; Wrought Turnings, \$13; Coil Steel, \$16; Leaf Steel, \$18; Locomotive Tires, \$20; Horseshoes, \$22; Axles, \$26; Mixed Country Wrought, \$14.

Barb Wire.—The demand for Barb Wire is fair for the season, but nevertheless the quantity sold is quite light. Prices continue as before, Painted being quoted at 3.40¢ and Galvanized at 4.15¢, with concessions according to quantity and conditions at competitive points. Plain Wire is still in good demand and prices are well sustained.

Nails.—Manufacturers' agents report a fair week's business among trade in districts west of this city, the demand being stimulated possibly by an anticipated rise in the freights to many western points of about 2 1/2 ¢ per keg on the 31st inst. In this immediate vicinity the demand for large lots has been very light. Jobbers, however, have been doing a good trade on the basis of old quotations, which are \$2.15 for Steel Cut Nails and \$3.10 for Wire Nails in ordinary quantities.

General Hardware.—A very good demand is still reported for staple goods, with possibly the exception of Builders' Hardware, which feels the effect of the gradual cessation of building operations. Freezing weather during the past week has stimulated the demand for seasonal goods, in which the local jobbers have had all the trade they could well handle. Collections continue excellent in every respect.

Cleveland.

CLEVELAND, October 24, 1887.

Iron Ore.—Despite the rough weather on the lakes 35,000 tons of Ore have been received during the past seven days. For the corresponding week in 1886 the receipts were 27,700 tons. The only sales reported to have been made are of a few small lots of non-Bessemer. A few thousand tons of non-Bessemer Hematites were sold at \$5, while No. 1 Specular, also non-Bessemer, is said to have brought \$6.15. It is asserted that these sales are conditional upon lake freights. If the rates take another advance the bargains are off. A large majority of the stock in the Gogebic range is owned in Cleveland. Holders discredit the reports sent out from the upper lake district that the outlook in the range is growing gloomy. They assert that the mines will produce more Ore next season than they have this, and that in 1889 all orders will be promptly filled.

Pig Iron.—Buyers still refuse to purchase iron, except in small quantities, but prices remain quite firm. There are reports of slight concessions having been made, but their reliability cannot be established. Foundry Irons have been in particularly good demand during the week just closed. Car-wheel manufacturers are asking for Charcoal Iron in substantial quantities. The market is active, but there is no disposition on the part of any one to lay in a supply, and sales are confined to lots so small that it is very difficult to give quotations of any practical value. A few carloads of No. 6 Lake Superior Charcoal sold during the week for \$24.25, f.o.b. Cleveland, four months. No. 1 American Scotch is held at \$21.55, and No. 1 Foundry, all lake ores, at \$21.35 @ \$21.85. Furnacemen in this vicinity say that there can be no possibility of any considerable decline in quotations for the next six months. Several furnaces claim to have orders on hand extending even further into the future. Some complaint is heard of a scarcity of cars in the lake region, and several furnacemen assert that they are annoyed by the frequent delays on the part of the railroad companies in supplying cars for shipping iron.

Manufactured Iron.—Bar Iron is quiet, with quotations remaining at 1.85¢ for Common and 1.95¢ for Medium.

Barbed Wire.—The market presents few features of interest. Quotations are \$4.10 for Galvanized.

Sheet Iron.—The demand is extraordinary. No. 27 is very firm at \$3.10 and No. 26 at \$3. The stores report large sales at figures in advance of these quotations, about \$3.35 being the actual selling price for No. 27.

Old Rails.—The demand is fair, and the tendency of the market is undoubtedly upward, as \$25 is said to have been paid for a small lot. Car-Wheels are worth \$21.50 and Old Axles \$27.

Nails.—The market is weak, Iron Nails having declined to \$2 and Steel Nails to \$2.10. Even at these figures there is but little buying.

Chattanooga.

Office of The Iron Age, Carter and Ninth Sts., CHATTANOOGA, TENN., October 24, 1887.

There seems to be a growing feeling throughout the South that new railroads are necessary, as at the present time many valuable districts—valuable both in their farming and mining interests—are almost practically unavailable from the fact that they are now virtually inaccessible to markets. Many tracts of mineral lands there recently changed hands and passed into the hands of those who have in view at some future time putting them into shape to develop them, but at present they are wholly inaccessible, and the only way to make them valuable is the construction of railroad lines. The present railroads are certainly insufficient to do the business required of them. The Anniston people are pushing their new furnaces to completion as fast as possible; they will probably be among the first of the lists of new furnaces that are building in the South to blow in. Some of the new furnaces that are being constructed are rather holding back in their work, looking around to see where their fuel is to come from.

Pig Iron.—The market has undergone no particular change; good Foundry Irons are scarce and hard to get, while Forge Irons can easily be had. If the furnaces that are now running through the South had plenty of No. 1 Coke, it is safe to say that their profits would range from 10 to 25 % more than they are now realizing. It is very aggravating for a furnace to persist in making only low grades of iron when its owners are being continually called upon for good Foundry Irons and have none to sell. Judging from the stuff that is sometimes put in at the tunnel head and called fuel, it is a wonder that the furnaces make any yield at all of what may be called Pig Iron. The commissioner of the Southern Steamship Association has issued rates on Pig Iron from Chattanooga and Birmingham to Northern and Western points, to commence and be in force from November 1st. They differ but slightly from the rates established for the month of October, a small concession being made to one or two points north of the Ohio.

Louisville.

LOUISVILLE, KY., October 24, 1887.

Pig Iron.—While the main features of the market have not changed materially for the past week, there is still an improvement in the demand, although prices have not been much affected thereby. The sales made are principally of Mill grades, less being done with Foundry and Car-Wheel Iron. Navigation has not been resumed, so that lots which have been lying at furnaces on rivers are still unmoved, although a portion of them have been sold for delivery on resumption of navigation. Many buyers are still short of iron, and are only ordering quantities sufficient to keep their works in operation. This, however, is just as well, as the stock at furnaces is so low that if all the buyers were to come in at once for a season's supply furnaces would not be able to meet the demand. While there are many who believe the market is weakening, yet the preponderance of opinion is that it must necessarily be stronger.

Southern Coke, No. 1 Foundry	\$20.50 @ \$21.00
" " No. 2	19.50 @ 20.00
" " No. 2 1/2	18.50 @ 19.50
Hanging Rock, Coke, No. 1 Foundry	20.00 @ 21.00
Hanging Rock, Charcoal, No. 1	23.00 @ 24.50
Foundry	22.00 @ 23.00
Southern Charcoal, No. 1 Foundry	21.00 @ 22.00
Silver Gray, different grades	17.50 @ 19.00
Southern Coke, No. 1 Mill, Neutral	17.50 @ 18.50
" " No. 2	17.00 @ 18.00
" " Cold Short	17.00 @ 18.00
White and Mottled, different grades	15.00 @ 16.00
Southern Car-Wheel, standard	24.00 @ 25.00
Brands	22.00 @ 24.00
Southern Car-Wheel, other brands	22.00 @ 24.00
Hanging Rock, Cold Blast	24.50 @ 26.00
" " Warm Blast	21.00 @ 22.50

Scrap Iron.—The market has been somewhat erratic of late. The prices have fluctuated very much without any apparent reason, and first-class Scrap Iron is now nearly as high as Pig Iron. Some large consumers, having secured quantities of Scrap Iron while it was low, are inquiring for Soft Open Irons, which will carry a large percentage of Scrap. The principal inquiry for Foundry Irons has been for these grades.

W. B. BELKNAP & Co., Louisville, report as follows, under date of October 24, 1887: Business continues very satisfactory. All of the jobbing houses here profess that they have had a much larger trade this fall than ever before in their history, and all report collections good. We are somewhat at a loss to account for the reports coming in from other sections of loss of trade and poor collections.

Bar Iron.—This article is jobbing freely, and, while prices do not show the strength that the demand would seem to justify, at the same time there is no cutting worth speaking of, and mills only seem to be afraid that after a while they will not have as much work as they would like. The railroads are overcrowded, and the demand for rolling stock extremely large. While the car works are so far behind their orders, it is hardly probable that there will be an over-supply of Bar Iron.

Hoops and Bands.—These are comparatively plenty, co-operation in this district being extremely light the present year.

Sheet Iron.—There is an exceptional demand for Sheets, both light and heavy gauges, and all of the mills are crowded with orders. It is with extreme difficulty that any assorted order can be had within a reasonable time, and then only by paying the fullest market price. The immense amount going into construction, smoke-

stacks, covering for houses, sheds, &c., has taken up all of the usual supply.

Nails.—Are selling very freely, but those who speculated in them early in the season have come to grief, inasmuch as there has been no advance in the price. They have maintained a dead low level now for months, Wire Nails in the meantime making constant inroads.

Wire.—There has been a fair demand for Wire, both Plain and Barbed. The farmers, however, have suffered so much from the drought that they are averse to spending any more money just at present than they are obliged to.

All of the factories here are busy, the Ohio Falls Car Works particularly so. They keep a standing advertisement in the newspaper for more carpenters and car builders. The only difficulty that we are encountering at present is the short supply of Pittsburgh Coal and blockaded railroads.

Pittsburgh.

Office of The Iron Age, 77 Fourth Avenue, PITTSBURGH, PA., October 25, 1887.

A good deal has been written within the past week in regard to a decline in the Iron and Steel business here that is considerably exaggerated. The break in Steel Rails and falling off in the demand has affected, as might be expected, all kinds of Bessemer Steel, as some of the mills hitherto working exclusively on Rails are now turning their attention to Blooms, Billets, &c., thereby increasing production. The general Iron business continues fairly active; mills are all in operation and as a rule have about all they can do, and the indications are that this will continue to the close of the present year.

Pig Iron.—Trade has been rather dull during the past week, some of the brokers having done next to nothing, and prices are weaker, although good brands, both of Mill and Foundry, being in scant supply, are held at pretty full rates. Owing to the tightness in money matters, the cash buyer has the advantage of those who buy on time. This, as a rule, is always the case, but it is more emphasized just now than usual. Bessemer Pig continues dull and weak, and while we are not advised of any sales having been made below \$20.50, cash, it is reported to have been offered during the week at \$20.50, 4 months, equal to about \$20, cash. We quote prices as follows:

Neutral Gray Forge	\$17.50 @ \$18.50 4 mos.
All Ore Mill	19.00 @ 20.00 "
White and Mottled	17.00 @ 18.00 "
No. 1 Foundry	21.00 @ 21.50 "
No. 2 Foundry	20.25 @ 20.50 "
No. 1 Charcoal Foundry	26.00 @ 26.50 "
Cold Blast Charcoal	27.00 @ 30.00 "
Bessemer Iron	21.00 @ "

Muck Bar.—The market has been less active the past week, but prices while weaker remain unchanged, and we continue to quote at \$31 @ \$31.50, cash, with sales at \$31 @ \$31.25, cash, one small sale, city make, at \$31.50, cash. A good many of the city mills refuse to sell below \$31.50, but buyers have now no difficulty in supplying themselves at \$31 @ \$31.25.

Manufactured Iron.—There has been little or no change in the situation during the past week; orders possibly are not coming forward quite so freely, but the mills nearly all appear to be busy; some of them are pressed. Prices for Merchant Iron are still quoted upon a basis of 1.90¢ @ 2¢, 60 days, 2 ¢ off for cash—that is, for well assorted orders. Skelp Iron continues in active demand, and that for Structural, Tank, Plate and Bridge keeps up well. Plate Iron is still quoted at 2.40¢ @ 2.45¢, and No. 24 Sheet at 2.85¢ @ 2.90¢. Railroads and car builders continue to buy pretty freely, and the outlook generally warrants the prediction that there will be a very good trade all winter.

Nails.—There has been little or no change in the situation since our last report. Trade continues dull and no likelihood of any change for the better until next spring, as trade is always light during the winter season. This has been a very unsatisfactory year for Nail manufacturers here, and we apprehend that the same is equally applicable to those of Wheeling. In addition to a very light trade, prices have been unremunerative. Prices remain unchanged at \$2, 60 days, 2 ¢ off for cash.

Wrought Iron Pipe.—There is a continued good demand; mills have all they can do; indeed, they are nearly all pressed, as consumers want to take advantage of the weather, and get all the pipe into the ground they can before the winter stops them. The demand for small Pipe has been light all this year. Prices remain unchanged. Discounts on Black Butt-Welded Pipe, 50 ¢; Galvanized do., 40 ¢; Black Lap-Welded, 60 ¢; Galvanized do., 45 ¢; Casing, all sizes, 50 ¢; Boiler Tubes, 55 ¢; 8-inch Drive-Pipe, \$1.40 per foot, net; 2-inch Tubing, 13¢ per foot, net.

Old Rails.—Prices remain unchanged; consumers both here and out in the Mahoning Valley have been buying of late, although they are not disposed to anticipate future wants to any considerable extent. We can report sales of some 2000 tons foreign Tees at \$25.25 @ \$25.35.

Steel Rails.—There have been no sales reported here recently; we understand, however, that they are being offered at \$35, cash, on cars at mill in Pittsburgh for winter delivery, and they might be bought for less. As stated in our last report, the Rail department of the mill at Homestead has been stopped.

Billets, &c.—Bessemer Steel Billets continue offering owing to a reduced demand

and an increased production; this may be attributed in large part to the reaction in the Rail market, by reason of which there are more sellers of all kinds of Bessemer Steel. We now quote Billets at \$31.50 @ \$32 and Nail Slabs at \$31 @ \$31.50, with very little call for the latter, owing to the very dull condition of the Nail trade. Rail Crops are weaker; may be quoted at \$21.50, and Bloom Ends at \$21; no sales reported recently, hence quotations are nominal.

Railway Track Supplies.—Spikes remain unchanged at 2.60¢, 30 days, delivered; Splice Bars, lower, 2¢ @ 2.10¢, as are also Track Bolts, 3 20¢ with Square and 3.30¢ with Hexagon Nuts.

Old Material.—The demand for all kinds of Old Material is less active, and prices weaker. No. 1 Wrought Scrap is still quotable at \$21 @ \$22, net ton, although one dealer here is reported as having made some sales as low as \$20; Wrought, \$13 @ \$14; Car Axles, \$27 @ \$28; Cast Borings, \$12 @ \$12.50, gross; Cast Scrap, \$16.50 @ \$17; Car Wheels, \$20 @ \$21; Open Hearth Steel, \$21 @ \$22, gross; Crucible, do., \$25 @ \$26, net ton.

Birmingham.

BIRMINGHAM, ALA., October 24, 1887.

Although it is said there is not as much discomfort here as there is East, speculation is almost paralyzed and regular business a good deal cramped in some lines for want of money. Discounting has been almost entirely suspended at the banks. These, with aggregate capital of \$1,650,000, and deposits in excess of \$3,000,000, showed in their statements for October 5 a little less than \$350,000 actually in the vaults, and their reserve has not been materially increased since.

Pig Iron.—The Iron trade reflects in some measure the tightness of money. While there has been no general weakening of prices, the tone of inquiry and volume of demand have not of late been altogether as reassuring as they were a few weeks ago. Still, a fair quota of sales of moderate size has been made in the last 10 days at fairly satisfactory figures, some of the furnaces reporting that they have not found it necessary to abate anything from the best prices they have been able to get since midsummer. Buying for next year's necessities continues at ruling prices. Production is a little heavier than it has been for some months, but no considerable accumulation of stock is possible on any of the yards.

Finished Iron.—There is a very sharp local demand for Finished Iron in many shapes. The new forge of the local mills has been broken down for some two weeks in consequence of a defect of construction and it has been impossible for them so far, with their considerably reduced output, to fill orders already booked. In light Rails, for which the numerous "dummy" lines and tramways have made a very heavy demand, and in a few other shapes, the management are not entering any new obligations. It is promised, though, that in a week or so they will be open in all lines for any volume of business. A feature of their recent business is the increased trade with the far West. A large proportion of their shipments for the last three weeks have gone to the Pacific slope.

Nails.—Betray some weakness at the manufacturing centers. Quotations to local wholesalers range from \$2.26 to \$2.30 for Steel Nails and \$2.10 to \$2.15 for Iron. The forcing out of Iron by Steel Nails continues, probably the largest dealer in the city having recently dropped the former entirely.

Detroit.

CHARLES HINBOUR & Co., dealers in Iron, Detroit, Mich., report, under date of October 24, 1887, as follows: The market at the present time presents two very important features. One is the large sale of Southern Iron, precluding the idea of prompt deliveries and by many the report is made of being unable to deliver until well on into next year. This would hardly seem to connect with the report from the various Iron markets that buyers are placing their orders only for immediate wants and in small quantities, while the opposite would seem to have been the case. Mahoning and Shenango Valley furnaces are reaching out for Foundry trade in a way that they have not done for some time past, owing to the large call for Bessemer Iron. Whether they will in the year 1888 cut such an important figure will depend almost entirely upon the Steel Rail industry, as it may open up after the first of the year. The report of the large shutting down of the mines in the Gogebic range, though partly attributable to the combination, and what it may result in, would seem to demonstrate in addition that too much money has been paid to carriers to enable the mines to operate successfully. It is thought that vessel rates will open low in the spring, owing to the great increased tonnage on the lakes. The second important feature is the low stocks in the hands of makers of Lake Superior Charcoal Iron. While the demand unquestionably has been large and at fair market rates, there can be little doubt but that after the close of navigation the same advances which have occurred for the last two years, will be made again this year. Scrap Iron, Cast and Wrought, is being offered more freely and at reduced figures. Old Wheels are a very scarce commodity here. We quote the market to-day as follows:

Lake Superior Charcoal, all num-	\$21.00 @ \$22.00
bers	22.00 @ 23.00
Lake Superior Coke, All Ore	22.00 @ 23.00
Lake Superior Coke, Under Mixed	21.00 @ 22.00
Standard Ohio Blackband	22.00 @ 23.00
Southern No. 2	21.00 @ 22.00
Southern Silvery	20.50 @ 21.50
Jackson County, Ohio, Silvery	22.00 @ 23.50
American Old Iron Rails	24.00 @ 25.50
Old Wheels	30.50 @ 31.50

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Trade Report.

General Hardware.

There has been little change in the condition of the market during the past week. Trade continues in fair volume with but unimportant fluctuations in prices. Reports from points in the interior indicate very generally a very satisfactory condition of business and a good demand.

NAILS.

The New York market is moderately active, but has not materially improved so far as prices are concerned, which continue \$2 to \$2.05 for Iron Nails from store, with abatement for carload lot orders.

WIRE NAILS.

There have been no new features for some time past, there being still some cutting locally. We quote \$3 to \$3.10 from store.

BARB WIRE.

The New York market is quiet and steady at 4 to cents for carload lots of Four-Point Galvanized Barb Wire, the principal struggle for business being apparently in the West.

MISCELLANEOUS PRICES.

The following prices are issued by the Union Indurated Fibre Company, 110 Chambers street, New York, as the jobbers' lowest selling prices for Indurated Fibre Ware. It will be of interest as showing the increasing line of goods manufactured by the company, as well as the figures at which the jobbers are expected to sell:

	Crates.	Weights.	Per
	Dozen.	Pounds.	doz.
Half Pails, 6 qt.	1	28	\$4.00
Weaver's Pails, 6 qt.	1	28	4.00
Star Pails (standard, plain).	1	36	4.50
Star Pails (for fire only).	12	36	4.50
Deck Pails (same size as star, but heavier, with heavy wire bail).	1	40	5.00
Fire Pails, 14 qt. (also stenciled "fire").	12	29	5.50
Fire Pails, round bottom (hooks extra).	12	17	5.50
Milk Pails, 14 qt.	12	43	5.50
Stable Pails (flush bottom, heavy wire bail).	12	50	5.50
Covers for Fire or Star Pails.	12	25	2.50
Wash Tubs, No. 1, 3 ft. 6 in.	12	60	16.50
Wash Tubs, No. 2, 3 ft. 6 in.	12	55	13.50
Wash Tubs, No. 3, 3 ft. 6 in.	12	58	15.50
Wash Tubs, No. 4, 3 ft. 6 in.	12	57	10.00
Keeler, No. 1, 12 1/2 in.	12	47	9.00
Keeler, No. 2, 12 1/2 in.	12	36	8.00
Keeler, No. 3, 12 1/2 in.	12	30	7.00
Keeler, No. 4, 12 1/2 in.	12	45	8.50
Milk Pans, 10 qt.	12	60	3.00
Wash Basins, No. 1, 1 1/2 ft. 6 in.	12	55	3.00
Wash Basins, No. 2, 1 1/2 ft. 6 in.	12	48	2.50
Wash Basins, No. 3, 1 1/2 ft. 6 in.	12	48	2.00
Wash Basins, No. 4, 1 1/2 ft. 6 in.	12	20	8.00
Butter Bowls, 15 in.	12	24	4.50
Butter Bowls, 17 in.	12	44	6.00
Butter Bowls, 19 in.	12	60	12.00
Butter Bowls, 21 in.	12	60	12.00
Butter Bowls, assorted, 15, 17, 19 in.	12	40	6.50
Handy Dish, No. 1, 8 qt.	12	25	3.00
Handy Dish, No. 2, 8 qt.	12	25	3.00
Handy Dish, No. 3, 8 qt.	12	20	3.00
Measures, 6 qt.	12	25	2.50
Measures, 4 qt.	12	30	2.75
Measures, 3 qt.	12	14	3.50
Spittoon, No. 1, 13 in.	12	29	10.00
Spittoon, No. 2, 12 in.	12	31	8.00
Spittoon, No. 3, 9 1/2 in.	12	30	7.50
Slop Jars, No. 0, 5 gal.	12	35	15.00
Slop Jars, No. 1, 4 gal.	12	39	12.00
Slop Jars, No. 2, 3 gal.	12	16	9.00
Slop Jars, No. 3, 2 gal.	12	25	5.50
Flower Pots, No. 1.	12	16	5.00
Flower Pots, No. 2.	12	15	4.50
Flower Baskets, round bottom.	12	15	4.50
Waste Paper Jars, No. 1.	12	16	11.00
Waste Paper Jars, No. 2.	12	16	12.00
Waste Paper Jars, No. 3.	12	14	9.00
Waste Paper Jars, No. 4.	12	14	10.00
Umbrella Stands, dull finish, plain, crated singly.	12	10	24.00
Umbrella Stands, dull finish, dec. crated singly.	12	10	27.00
Umbrella Stands, full finish, dec. crated singly.	12	10	27.00
Water Cooler, single, 8 gal., crated singly.	12	7	24.00
Water Cooler, single, 5 gal., crated singly.	12	8	27.00
Water Cooler, single, 6 gal., crated singly.	12	9	30.00
Water Cooler, double, 8 gal., flat cover, crated singly.	12	10	36.00
Water Cooler, double, 4 gal., oval cover, crated singly.	12	10	48.00
Waste Paper Jar, No. 1, 10 in. dia., 12 in. deep.	12	18	21.00
Waste Paper Jar, No. 2, 9 in. dia., 12 in. deep.	12	16	30.00
Umbrella Stand, 9 in. dia., 23 in. deep, crated singly.	12	10	45.00
With Rings, 10 c. per doz. extra.			
With one ring or two handles, 25 c. per doz. extra.			
10 in. dia., 12 in. deep.			
19 in. dia., 23 in. deep.			

McIntosh, Huntington & Co., Cleveland, Ohio, issue the following special prices on Hay Knives, Wringers, Shovels, &c.

Hay Knives.

Heath's Hay Knife, per dozen, net.....\$9.00
Lightning Hay Knife, per dozen, net.....11.50
No. 2, Straw Knife, per dozen, net.....8.50
No. 2, Hay Knife, Clinter Point, per doz., net \$8.00
No. 2, Hay Knife, Spear Point, per dozen, net, 9.00

Fodder Twine and Lath Yarn.

Jute Fodder Twine, per pound, net.....\$0.05 1/2
Sisal Lath Yarn, or Fodder Twine Medium, per pound, net......08
Sisal Lath Yarn, or Fodder Twine Fine, per pound, net......08 1/2

Wringers.

No. 10 Keystone.....\$18.00
No. 2 Cyclone.....\$17.00

Scoop Shovels.

No. 438, Furnace Scoops, D handle, Black, Cast Steel, per dozen, net.....\$6.00
No. 701, Boyer, D Handle, Half Polished, Iron, Western Pattern, Size 1, per dozen, net.....4.86
No. 702, Boyer, D Handle, Half Polished, Iron, Western Pattern, Size 2, per dozen, net.....5.13
No. 703, Boyer, D Handle, Half Polished, Iron, Western Pattern, Size 3, per dozen, net.....5.40
No. 704, Boyer, D Handle, Half Polished, Iron, Western Pattern, Size 4, per dozen, net.....5.67

No. 705, Boyer, D Handle, Half Polished, Iron, Western Pattern, Size 5, per dozen, net.....5.94
No. 711, Ohio King, D Handle, Full Polished, Steel, Western Pattern, Size 1, per doz., net. 7.30
No. 712, Ohio King, D Handle, Full Polished, Steel, Western Pattern, Size 2, per doz., net. 7.40
No. 713, Ohio King, D Handle, Full Polished, Steel, Western Pattern, Size 3, per doz., net. 7.60
No. 714, Ohio King, D Handle, Full Polished, Steel, Western Pattern, Size 4, per doz., net. 7.90
No. 715, Ohio King, D Handle, Full Polished, Steel, Western Pattern, Size 5, per doz., net. 8.10

Wire Screening Scoops.

Wire Screening Scoops, Steel Wire, Galvanized, per dozen, net.....\$12.50
It is suggested that if some of these goods are ordered a line of their Pocket Cutlery be tried.

The Biddle Hardware Company, Philadelphia, issue a circular, October 18, in which they allude to the fact that they have in stock 25,000 pairs of German Acme Pattern Skates, No. 5. This being more than they require for their regular trade, they offer the surplus stock until November 15 at the following prices, which are subject to a discount of 5 per cent. for cash within five days from date of invoice:

100 pairs, assorted, per pair.....\$0.50
300 pairs, assorted, per pair......48
500 pairs, assorted, per pair......45
1000 pairs, assorted, per pair......40

These Skates are packed in cases of 100 and 200 pairs, assorted, the details of the assortments being stated in the circular. Orders will be accepted only for full cases.

The Auger and Bit market continues without change in price, there being a fair but not exceptionally heavy demand for the goods, the prices being regarded as low, but the future course of quotations being considered an open question. The manufacturers are consulting as to the feasibility of making arrangements which will result in giving more uniformity to prices, but with what success remains to be seen.

The market for Cast and Wrought Butts continues steady, prices being well maintained, and the demand good.

The manner in which the combination on Carriage Bolts is maintained is very gratifying to manufacturers and jobbers. The latter especially have profited by it not only through the large orders which were placed at low figures and the benefit which accrued from the repeated advances, but also in the regularity which has been given to prices and the margin of profit at which the goods are sold. The large contracts which the manufacturers had for goods purchased, some of them at extremely low figures, prevented them from reaping the full benefit of the improved prices, but the fact that such contracts are almost entirely out of the way is referred to as very satisfactory, and manufacturers are beginning to reap the benefit of the higher prices prevailing. The fact that they are also free from the pressure of the heavy freight allowances which previously were made is also alluded to as rendering the present prices the more remunerative.

Coffee Mills are steady at present prices, but 40 per cent. instead of 45 per cent. is often used by the jobbers as the base discount, the quotation being frequently made in the form of discount 40 and 10 and 10 per cent.

The prices of Casters are maintained with regularity, there being little change in the condition of the market. This steadiness in the price of an article which until recently fluctuated quite freely is regarded with satisfaction.

Wire Nails in papers are somewhat irregular in price, the tendency being toward somewhat lower figures. The fact that the new list is not uniformly used tends to increase this unevenness, the goods being sometimes bought on the old list at discounts which represent exceptionally low quotations on the new list.

Meat Cutters are in active demand, but there is a good deal of irregularity in the prices at which they are sold.

The trade as regards the Steel Goods Association with some interest, especially as to the probability of the maintenance of prices in accordance with their terms. Thus far, it is a matter of congratulation, there has been no open break.

Chisels and Drawing Knives continue low and irregular in price, many of the trade deeming purchases of these goods a safe investment.

The following is the list of the Davis Self-Locking Sash Fasteners made by the Barnes Mfg. Company, for whom Sise, Gibson & Co., 100 Chambers street, New York, are agents. The list is subject to a discount of 50 per cent.:

	Per doz.
No. 100, Ornamental Iron Bronze.....	\$5.52
No. 100, Ornamental Iron Bronze, with Real Bronze Trip.....	6.00
No. 200, Plain Brass.....	8.75
No. 200, Plain Brass, Polished.....	9.72
No. 210, Plain Brass, Dark Finish.....	9.72
No. 220, Ornamental Real Bronze.....	8.75
No. 222, Ornamental Real Bronze, No. 4 Finish.....	9.72
No. 225, Ornamental Real Bronze, Dark Finish.....	9.72
No. 230, Plain Real Bronze.....	9.00
No. 235, Plain Real Bronze, Polished.....	10.06
No. 240, Plain Real Bronze, Dark Finish.....	10.06

Extra Heavy for Large Windows.

	Per doz.
No. 300, Plain Brass.....	\$16.50
No. 305, Plain Brass, Polished.....	17.52
No. 310, Plain Bronze.....	15.00
No. 315, Plain Bronze, Polished.....	19.20

The following are the prices of the Smith Mfg. Company, Danville, Ind., who are manufacturers of Smith's Patent Adjustable Screw Flour Scoop and Sifter, Milk Strainers, Sifters, &c.:

	Per dozen.
Smith's Adjustable Sifter.....	\$2.25
Smith's Adjustable Milk Strainer.....	2.00
Smith's Adjustable F. and C. Strainer.....	1.75

a salesman in General Hardware for Central Indiana and Illinois. We may say that this advertisement is from a well-known and responsible house, and is worthy the attention of the best men.

At a special meeting of the Table Cutlery Manufacturers' Association, held on the 6th day of October, 1887, the following minute was adopted:

It is the wish of this association to give expression of their loss in the removal by death of our late associate, Mr. Frederick Wiebusch. His sterling business qualities and cordial kindness are so well known that it remains for us to but place on record our appreciation of his solid worth as a counselor and friend. We mourn his loss. The secretary is directed to enter this resolution on the records of the association, to forward a copy of the same to the family of the deceased and publish in *The Iron Age*.

The Troy Nickel Works, Troy, N. Y., allude to goods similar to the Alaska, which they understand are about to be put on the market, as infringements on their patents, and they intimate that their rights in the matter will be protected.

From their advertisement on page 34 it will be seen that the American Tool Company, 116 Chambers street, New York, are calling attention to their line of Tool Chests, and requesting applications for their illustrated catalogue for 1887.

Hibbard, Spencer, Bartlett & Co., Chicago, Ill., have issued under date October 12 a catalogue of Skates, Sleigh Bells, Hand Sleds and other fall and winter goods. An extensive variety in the lines indicated is presented, together with Cutlery, Silver Plated, Flat and Hollow Ware, Clocks and other specialties. They call attention on a separate sheet to their line of Snow Shovels.

Read & Auerbach, 239 Bowery, New York, have recently issued a price list of S. J. Addis's London Carving Tools, of which they are large importers. This list relates to nearly 1000 numbers of these goods, and is fully illustrated, giving cuts of the different kinds of Tools, with representations of the different sweeps. The catalogue thus issued will serve the convenience of the trade who may desire goods in this line, of which a full assortment is kept in stock. They have also recently put on the market the Addis Carving Tools in sets of either six or twelve tools.

The Globe Nail Company, Boston, announce that A. W. Kingsland has been appointed general sales agent of the company, and will give his special attention to the sale of their Nails.

Richards & Co., Boston, issue a convenient catalogue of sizes of Tin Plates, Sheet Iron, Sheet Zinc, Sheet Copper, &c., which are kept in stock by them, together with prices and illustrations of Tools, &c.

The descriptive hand-book of the manufacturing and mercantile resources of the city of Decatur, Ill., contains an article relating to the establishment of Chambers, Bering & Quinlan Company. An illustration is given showing the buildings and grounds of the company, their principal manufactures being also separately represented. These include the Hawkeye Hay Loader, which is shown at work, the U. S. and the C. B. & Q. Combined Check Row Corn Planters, Reversible Carriers, Hawkeye Fork and Brown's Hog Rings and Ringers. A statement of the history of the company is also given, with information as to the present extent of their business.

E. S. & F. Bateman, Spring Mills, N. J., issue a circular announcing the New Model Seed Drill, which they are now putting on the market. They allude to the demand for a Hand or Garden Seed Drill, to meet which this is offered, and it is referred to as entirely satisfactory in its operation.

The Joseph Dixon Crucible Company, Jersey City, N. J., and 68 Reade street, New York, issue circulars relating to Dixon's Silica Graphite Smokestack and Boiler Front Paint. This Paint is intended for locomotive and steamboat stacks, smoke arches, ash-pans, boiler fronts and other iron work, and is described as durable and beautiful, unaffected by heat or cold, dampness, soil, air, rust or even acids. The prices are given, and the names of some parties using the Paint.

McIntosh, Huntington & Co., Cleveland, Ohio, issue an illustrated price list of Pocket Cutlery, of which they show a large number of leading styles, the list prices being given with the intimation that a liberal discount will be quoted on application. The Cutlery thus offered to the trade includes a line of Miller Bros.' goods, an assortment of German Knives, which are referred to as of good patterns and low priced, and some of the Cleveland Cutlery Company's goods, which are almost exclusively Pen Knives. Concerning this Cutlery they make the following propositions: That they will accept orders for 12 or more dozen Knives, patterns to be selected by the buyer or themselves, and will prepay the express charges on the same, with the understanding that in case the selection of the Knives is left to them any patterns that are not satisfactory may be returned at their expense at any time within 30 days of date of purchase. They also state that with each half dozen Knives they will supply a box suitable for showcase. They also send out a sheet, referred to in another column, relating to Straw and Hay Knives, Wringers, Shovels, &c., on which they intimate they are making a special drive.

E. T. Barnum, Detroit, sends out circulars relating to goods of his manufacture, including Wire Spark Guard, new style Flower Stand, Wire Nursery Fenders, Cretings for buildings and the Universal Coiled Wire Door Mat, the latter article being made under patent March 8, 1887.

C. Sidney Shepard & Co., Chicago, Ill., issue October 15 a full circular in which they call the attention of the trade to their Dampers, Stove Boards, Coal Hods, Elbows and other seasonable goods, illustrating also a variety of specialties in their line.

The Chicago Tubular Well Works, Chicago, Ill., issue a discount sheet under date of October 1, giving discounts on their varied assortment of goods in this line.

DICTATING PRICES.

We have the following communication in regard to the efforts which are made by certain manufacturers to dictate to the jobbers the prices at which their goods are to be sold. Our correspondent draws his illustrations from certain lines closely connected with plumbing, but our readers in the Hardware trade will recall other attempts in other lines to accomplish the same thing, as, for example, in Cartridges, Carriage Bolts, Sandpaper, &c. In the letter given below it will be seen that the writer argues strenuously against the unreasonableness and injustice of this dictation on the part of the manufacturers:

It is a well-established practice in all lines of trade for the seller, whether manufacturer, jobber or dealer, to charge different prices, according to the amount of the purchase and the credit of the buyer. In other words, there is a difference between wholesale and retail prices. The extra charge made to the consumer pays the cost of distribution and the profits to the middlemen. This is, in barest outline, the common method of doing business. There are certain products, like Steel Rails, for instance, which the manufacturer sells direct to the consumer, and in such cases there is a single market price. There are certain other products, also, like dry goods, which pass through several hands before reaching the consumer, and are, of course, sold at increasing prices by each distributor. It requires no reasoning to show the necessity of some such practice, for without it trade could be neither efficiently nor profitably carried on. In the last few years, however, attempts, partially successful, have been made by manufacturers and others to introduce certain new regulations governing the action of distributors and to dictate to the latter in some measure how they shall carry on their trade. The obnoxious practice that we refer to obtains in the trade in plumbers' supplies as well as in some other departments of business. We shall by way of more specific comment revert briefly to the protective resolutions adopted by the National Association of Master Plumbers in 1884, the regulations subscribed to by the Manufacturers' Association of Brass and Iron Steam, Gas and Water Work last year, and the agreement entered into by the members of the Eastern Lead Pipe Association regarding dealers. According to the protective resolutions of the plumbers, which we will assume are nominally enforced, manufacturers of or dealers in plumbers' materials shall sell to none but master plumbers, manufacturers of Gas Fixtures shall not sell to consumers, and manufacturers of or dealers in Wrought-Iron Pipe shall not sell to consumers. This is the sum and substance of the demands, the provision made for enforcing them being the declaration of a boycott against the transgressor. Under these resolutions it would be unlawful to sell goods to any one outside of the plumbing trade, even though retail prices were charged. The success of the scheme is something which there is no necessity of discussing in this connection, as the mere fact of its existence and attempted enforcement is what we criticize as an infringement of business rights.

The regulations of the Manufacturers' Association of Brass and Iron Steam, Gas and Water Work are not quite so obnoxious as the plumbers' protective resolutions, for the offender is not threatened with the boycott. The Manufacturers' Association class buyers under the head of "consumers," "trade," "preferred dealers" and "extra preferred dealers." Consumers, it was agreed, should be charged special high prices, which was reasonable and right; the trade should be sold at trade discounts, which was also commendable; the preferred dealers were allowed more than a trade discount, and the extra preferred dealers were charged a still lower price. Thus we have the trade divided into three classes, each buying at different prices. Without going into the intricacies of the system, we will explain briefly the position of the preferred dealers, for they comprise the major part of the trade. A dealer having been placed on the preferred list of the association is entitled to a discount in addition to the regular trade discount, but before he is allowed this privilege he must sign an agreement to the effect that he will not sell below the trade discount, and will also abide by the other rules of sale adopted by the association. Any dealer, therefore, who would enjoy the privileges common to the majority in his trade must give a pledge to the manufacturers as to how he will carry on his trade, or for the sake of a necessary privilege he must surrender his liberty of action in his own business. The case, we acknowledge, is not so bad as with the plumbers, for the latter would, if they could, enforce obedience through the terrors of the boycott, while the association of manufacturers would win allegiance rather through tempting offers, demanding signatures, of course, and providing penalties for disobedience. The plumbers would make it impossible to live outside of their agreement while the manufacturers' association would make it impracticable to do so, the same thing, but less harsh of sound.

Our third illustration of changing business methods is a regulation of the Eastern Lead Pipe Association. They also have a list of dealers who are entitled to an extra discount on Lead Pipe. The aspirant for list honors must, however, sign an agreement that he will maintain prices and terms as may be established by the manufacturers. But the strangest, we will not say funniest, thing about this pledge is the following sentence: "Should we at any time violate the stipulations of this agreement, all claim to the extra discount is waived by us." In other words, "over our signature we promise, in return for certain privileges, to do so-and-so, but if at any time we break our agreement we shall not demand the privilege." An agreement is signed in which a provision is inserted stating what happens if the signer is proved a liar. We wonder if any of the dealers who have entered into this compact with the Eastern Lead Pipe Association ever felt that they were lowering their self-respect by such an act. But this is a peculiar feature of this particular trade, and is not worthy of sober discussion. Having illustrated by three examples the obnoxious trade custom that we spoke of, we would like, if your space permitted, to discuss its general features and point out its evil tendency. Luckily, however, the bald record of facts in this case is a strong argument which is almost unnecessary to add to. The one general criticism to be made is that the dealer who submits to the dictation of the manufacturer loses his independence and becomes nothing more than the manufacturer's employee selling goods on commission. The manufacturer has no right to seek to control his goods after they pass out of his hands unless through his own agency. Employers have with good cause raised their voice against trades unions and organizations of these men which sought to dictate to them how they should regulate their business in the matter of wages, hours of labor and workmen employed. Did it ever occur to the manufacturers that they are similarly infringing the rights of others when they demand of the jobber that he shall sell only to a certain class of buyers, and not below a specified price? The practice that we complain of will not be reformed through any criticism of ours. It is a business experiment, and will be followed till experience proves its fallacy. The policy of dictation is, however, an essentially wrong one and cannot permanently endure.

SHEFFIELD TRADE WITH THE UNITED STATES.

Mr. Folsom, United States Consul at Sheffield, has compiled and issued the following statistics on this head:

The value of the Steel exported in the 12 months ending December 30, 1881, was \$239,329. 6/11. The following year it was \$218,371. 5/7 1/2, and in 1883 it was \$239,573. 9/5. In 1884 the steel exports declined to \$232,124. 19/0 1/2. The statistics with reference to Cutlery are as follows: 1881 (year ending December), \$270,090. 19/2; 1882, \$252,756. 19/3 1/2; 1883, \$249,120. 1/11 1/2; 1884, \$174,385. 11/3. In 1885 the American trade fell down to: Steel, \$223,053. 12/10; Cutlery, \$151,507. 8/5 1/2. Since then there has been a steady revival, the last quarter having been more prosperous than the opening one. The following are the statistics for the last two years:

Quarter ending	Steel.	Cutlery.	Total exports.
	\$.	s. d.	\$.
Dec '85	64,657 10 7	45,188 18 2	109,845 9 11 1/2
Mar '86	62,272 11 3	36,181 1 7 1/2	98,453 8 6 1/2
June '86	64,241 3 2	45,279 2 1	109,520 5 3
Sept. '86	65,141 8 10	51,557 19 5	116,698 7 10 1/2
Total	256,312 8 0	178,206 16 9 1/2	434,518 13 2 1/2
Dec. '86	73,474 12 0	48,789 18 8 1/2	122,263 10 8
Mar '87	72,897 14 10	44,767 13 10 1/2	117,664 17 11 1/2
June '87	83,184 19 4 1/2	46,617 11 8	129,801 4 3
Sept. '87	77,607 2 10	60,523 13 0	138,130 15 4 1/2
Total	307,164 9 0 1/2	200,692 11 10	507,856 10 3

STOVE REPAIRS.

The Metal Worker thus discusses the vexed question of Stove Repairs, and gives letters received from merchants and manufacturers:

The objection usually advanced to the suggestion of *The Metal Worker* that manufacturers should discontinue furnishing repairs for obsolete stoves is that such a movement would require the concurrent action of all the manufacturers, and then, as some would refuse to enter into such a compact, it is impracticable.

We are well aware that any change in the policy of the trade demanding concurrent action on the part of even a majority of the manufacturers is impracticable. For two or three years the trade has been discussing such schemes, but nothing has resulted from the discussion, and nothing will. Any benefit which comes to the trade will come through individual action. The trade is too much scattered and too much disturbed by sectional and personal jealousies to be united on any course of action, however desirable. Scales of prices, terms of credit or whatever else the National Association may adopt have no weight as binding, or materially influencing, individual action. In so far as such scales, conditions and rules express the average experience, they are respected—and no further. We concede, therefore, that if the destruction of obsolete patterns depended upon the joint action of the trade, and could not be done safely unless all or a large majority of manufacturers should agree to it, further discussion would be useless.

But the wisdom of individual action in this matter in no degree depends upon the judgment or action of any one except

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been destroyed, but no one has been boycotted in consequence. There is probably not one manufacturer who has been for any length of time in the business who can furnish repairs for everything he has made. He frequently has to advise his customers that he is unable to fill certain unusual repair orders, but it would be difficult to show that he has ever lost a customer in consequence. Why, then, should he be afraid to protect himself by like measures in the case of all patterns which do not yield him a profit.

The consumer adapts himself to any rule established in trade. If he is long-headed enough to order the repairs he is likely to need when he buys his stove, well and good. They would be lost or broken before he needed to use them. If the manufacturer feels that he can afford to throw in an extra grate or fire-back for the benefit of the dealer, there is no objection to his doing so. He would not do this more than one season.

During the past week we have received a great deal of correspondence on this subject, much of it written in the spirit of inquiry as a preparation for discussion. From among the positive expressions of opinion, favorable or unfavorable, we take the following:

Daniel E. Paris, of Troy, expresses himself with characteristic vigor as follows: "This matter of destroying patterns of stoves no longer made is of little or no importance as a public question. Each individual case will decide itself. In some cases it would be folly to destroy the patterns. No man would do it for the profit in it. The question is therefore of no public importance in its broad form. The only possible question in it is: 'After the repair trade on a stove no longer made ceases to be profitable, ought a business man to act the part of a missionary or benefactor of his race, and keep the old patterns for the good of others at a loss to himself?' Business is not usually conducted in that way. A business house is not usually a hospital or a charitable institution, but if any man takes pleasure in so conducting his business he may have his reward hereafter, inasmuch as his means of increasing warmth on earth may be subtracted from the volume that may be apportioned to him in the future. Probably any one keeping old patterns past their day of profit will take this view of it."

Mr. William Corry, of Southard, Robertson & Co., says: "I have no doubt that the abandoning of all repairs for stoves no longer made is an excellent idea. The effect of it had never presented itself to me in the light you show it."

Mr. John S. Perry, of Albany, discusses the subject by entering what the lawyers call a "general denial." Discussion by selecting a sentence here and there and contradicting it does not seem to us to quite reach the root of the matter under consideration. This, however, is unimportant. We are quite sure that a majority of the manufacturers of the country will differ from Mr. Perry in many points—quite as readily, indeed, as he differs from *The Metal Worker*; but a one-sided discussion would be monotonous, and Mr. Perry's letter will give the subject additional interest.

Editor of The Metal Worker.—DEAR SIR: I have read with pleasure your interesting paper published in *The Metal Worker* of the 17th ult., and entitled, "What is the Matter with the Stove Business?" although in some respects I differ from you. It would appear to be true that the activity in this trade is not quite equal to that in most other kinds of business, though I have little knowledge of what other manufacturers are doing. Perry & Co. have not one-half the number of stoves on hand which they had a year ago, and are more troubled to fill orders promptly than to make sales. They are running two foundries, and procuring more or less work made in five others, and yet are compelled to disappoint many of their customers. They have made strenuous efforts to secure some stoves by purchase from manufacturers in Albany, Troy, New York, Philadelphia, Pittsburgh, &c., without success. All this would seem to indicate, as far as it goes, that your idea of an existing overstock is erroneous.

It is probably true that the facilities for manufacturing have outrun the increase in population—this latter has been and still is very large, but this will take care of itself. Every kind of business is subject to its ebb and flow of tides; the stove business no more than any other, I believe. I have not in 44 years known a time "when the repair trade of a well established house was probably its most valuable asset," nor when it was as large or as valuable as at present. It is almost beyond our ability to meet the demand in this regard, at least with reasonable promptness. I think you are in error in stating that "for some years the average life of a set of patterns has not reached two seasons, and that now they do not average more than one." But, on the other hand, I feel warranted in placing the average at not less than five years, and I believe it is greater. Minor changes of plated ornaments, &c., which may be frequent, do not destroy the main structure. At the same time, I grant there are too many patterns made, but the indications are for a less number in the future. "Patterns, follow-boards and flasks are accumulating," as you say, without any question, but an economical manager will utilize most of the follow-boards from discarded patterns, and find them far more valuable for new work than when made from less seasoned lumber. And in regard to flasks, all except those which are cut, and even many of these, are worked over for new patterns. A percentage, of course, every year are burned and otherwise made unfit for further use, but this is irrespective of the patterns for which they were made being continued in use or discarded.

What you say of the "pirates," those bold-faced thieves, is too true, but I am not aware that "to be ready to attend to orders

for surface plates the manufacturer has to build and maintain costly fire-proof storehouses and provide large yard areas." No doubt these repairs occupy some rack room in our warehouses, but not to any such extent as you assume. For some obsolete stoves it is expensive and troublesome to hunt up patterns and flasks to make repairs, but a conscientious manufacturer has some regard to the wants and interests of his customers, and also of the public, and particularly of "the careful housewife." It may be true, for aught I know, that "the manufacturers of wall paper, carpets, sewing machines, bicycles, agricultural machinery, &c." refuse to furnish repairs for their respective goods, though I have supposed it to be different; but if they do so disregard the principles of common justice it is no reason why stove manufacturers should do it. Perry & Co. have always been in the habit of furnishing repairs for stoves even 10, 15 and 20 years old, and they take pleasure in doing so. The desire evinced by the public to hold on to such old patterns is a high compliment paid to the quality of their goods.

You are again in error in stating that the manufacturer in selling surface plates for repairs "gets something more than double what he charges for the same weight of iron in new goods." The advance will not exceed 25 per cent. I doubt if any manufacturers are afraid of being ruined by the sale of repairs, though they frequently make pieces which do not pay the cost. In all my experience I do not remember of ever having furnished repairs to "junk dealers," though possibly here and there we have done so, but not to any appreciable extent. I do not see any occasion for alarm from this source. You estimate "that the repairs furnished by the foundries which get very little of the profitable repair trade reduce the aggregate sale of new stoves 33 1/2 per cent. a year." This, according to the estimate of our able secretary of the number annually manufactured, would amount to 1,000,000 per year, or repairs furnished for an average of about 4000 stoves to each manufacturer in the United States. I think it would scarcely be safe to say that the average would reach over 25, thus, as you claim, by inference, defrauding manufacturers of sales to that large number. I think it may be safely said that if these repairs were not furnished to a reasonable extent the public would be most unjustly treated. You over-estimate the percentage of repairs sold by pirates. It is not "a drop in the bucket," to the entire sale; yet it is a serious inroad upon the just rights of manufacturers, and in most cases is simply stealing, and high-minded merchants will not give their favor to these outlaws.

The grand remedy, then, for what you please to intimate as being "the unsatisfactory condition of the stove trade," in your opinion, appears to be "to wipe out old patterns and discontinue repairs." That, the moment this is done, manufacturers have the "matter practically in their own hands." If this novel scheme could be put in practice with the cheerful acquiescence of the public, it would no doubt be advantageous to manufacturers, but, at the same time, it would be an extravagant waste of property, and subject millions of people, who could ill afford it, to great inconvenience. I doubt if this is the best way "to obviate a continued congestion of all the avenues of distribution, commonly known as 'overproduction.'" It is generally believed that this will be corrected by the natural laws of demand and supply.

A correspondent who elects the *nom de plume* of "P. S. F.," expresses his views as follows: "We think your idea of abandoning all repairs for stoves that are not now made is a good one, and would help the stove trade to a very large extent if the idea would be carried out by each and every stove manufacturer in the United States, but as such an agreement would not be carried out by every stove manufacturer it would result in no practical good. If nine-tenths of all the stove manufacturers in the country agreed to such a thing, the other one-tenth would at once notify the trade that they could furnish repairs for stoves made 50 years ago, &c., and make an immense amount of capital on the announcement. Same in regard to the restriction on new patterns. We think that nine-tenths of the manufacturers of the country would agree not to make any new patterns for the next three years, but the result would be about as follows: The manufacturers who sell, for example, \$100,000 worth of stoves per year, and who have expended say \$5000 per year for the last three years in new patterns, would, at once advertise that they intended to furnish no new patterns for the next year, thereby effecting a saving of \$5000—or 5 per cent. on the amount of their sales; therefore they intended to give their customers the benefit of this saving, and sell their stoves at 5 per cent. less than the last year. This would be of 'immense' benefit to the manufacturer. What would be the result? One of the one-tenth who has made no agreement not to make any new patterns will answer the above, that he believes in progress and improvements, and intends to expend a large amount of money for new patterns for the coming year, which will be sold to his customers at less prices than his competitor, who has nothing but old styles of stoves to offer. Same with anything else that may be done or attempted to be done for the benefit of stove manufacturers. Everything and anything will be promptly 'given away.' Why does this state of things exist? Other manufacturers are able to make agreements that are lived up to, and result in general benefit, but we have never known the stove-makers to benefit themselves."

Barr Pumping Engine Co., with a capital of \$200,000, is one of the latest additions to the large manufacturing establishments of Philadelphia. They are putting up a three-story building 100 x 50 for use as a machine shop, and one of 100 x 51 for a foundry, all of which are expected to be ready for occupation before the end of the year. They are putting in a large amount of special and improved machinery, and expect to turn out one of the best duplex pumps in the market. The officers are: George Burnham, president; W. M. Barr, vice-president; George Burnham, Jr., secretary and treasurer.

Paints, Oils, &c.

Paints.	
Black, Lamp—Coach Painters'.....	22 @ 24¢
Ordinary.....	6¢
Black, Ivory Drop, fair.....	12 @ 15¢
Best.....	28¢
Black Paint, in oil.....	14 @ 18¢
Blue, Prussian, fair to best.....	40 @ 55¢
in oil.....	45 @ 55¢
Chinese dry.....	70¢
Ultra-marine.....	18 @ 30¢
Brown, Spanish.....	10 @ 12¢
Van Dyke.....	10 @ 12¢
Dryers, Patent American, ass'd cans, 9¢; kegs 7¢	
Green, Chrome.....	15 @ 23¢
Green, Chrome in oil.....	14 @ 18¢
Green, Paris.....	30¢
Green, Paris in oil.....	30¢
Iron Paint, Bright Red.....	24¢
Iron Paint, Brown.....	15¢
Iron Paint, Purple.....	15¢
Iron Paint, Ground in oil, Bright Red.....	61¢
Iron Paint, Ground in oil, Red.....	51¢
Iron Paint, Ground in oil, Brown.....	51¢
Iron Paint, Ground, Purple.....	61¢
Litharge.....	2 @ 4¢
Mineral Paints.....	10¢
Orange Mineral.....	10¢
Red Lead, American.....	61¢
Red Venetian (Eng.) dry.....	\$1.65 @ \$1.70
Red Venetian in oil.....	11¢
Red Indian Dry.....	9 @ 12¢
Rose Pink.....	10 @ 13¢
Sienna, American Raw powdered.....	4¢
Sienna, Burnt, powdered.....	10 @ 16 @ 20¢
Sienna, Raw.....	11 @ 15 @ 25¢
Umber, Burnt, powdered.....	4 @ 8¢
Umber, Raw, powdered.....	9 @ 12 @ 15¢
Umber, Raw, in oil.....	12 @ 15¢
Vermillion, Chinese.....	90¢
Vermillion, English.....	55 @ 60¢
White Lead, American pure dry.....	15¢
White Lead, American pure dry, in oil.....	71¢
White Paris, English Prime.....	2 @ 24¢
Yellow Ochre, French in oil.....	\$1.75
Yellow Ochre, French in oil, ass'd cans, 11¢; kegs, 8¢	
Yellow Ochre, Vermont.....	17 @ 27¢
Yellow Chrome, in oil.....	14 @ 18 @ 24¢
Zinc White, American No. 1, dry.....	5 @ 5¢
Zinc White, American No. 1, in oil.....	51¢
Zinc White, French (Paris Dry).....	51¢ @ 71¢
Zinc White, French, in oil.....	10 @ 11¢

Oils.	
Bleached Whale, 7 gal.....	40 @ 42¢
Bleached Sperm, 7 gal.....	78 @ 80¢
Fish Oil, Pressed in oil.....	26 @ 26¢
Lard, Prime Winter.....	5 @ 5¢
Cylinder Oil.....	70¢
Machinery.....	45¢
Engine.....	55¢
Linseed, Raw, in casks and bbls.....	46¢
Linseed, Boiled, in casks and bbls.....	46¢
Neatsfoot.....	65 @ 70¢
Cotton Seed, Refined.....	42 @ 43¢

Sundries.	
Asphaltum, Cuban, 7 gal.....	54 @ 64¢
Asphaltum, Egyptian.....	5 @ 6¢
Benzine, 52° 7 gal.....	84 @ 94¢
Coal Tar, 100 lb.....	\$3 @ \$4
Chalk, 100 lb.....	45¢
Crucibles No. 14 and upward, 7 number.....	3¢
Crucibles No. 14 and upward, 7 number.....	4¢
Flour Emery, 300 lb kegs.....	4 @ 44¢
Flour Emery, finest quality.....	24 @ 25¢
Glue, White.....	18 @ 35¢
Glue, Sheet.....	18 @ 20¢
Glaziers' Points, Zinc, 7 box.....	\$4.75
Gum, Copal.....	36¢
Gum, Damar.....	25¢
Gum, Shellac, English.....	35¢
Gum, Shellac, English, dark.....	25¢
Mineral Wool, ordinary, 7 lb.....	1 @ 14¢
Mineral Wool, extra.....	3 @ 34¢
Naphtha, 70°.....	9 @ 10¢
Naphtha, 70°.....	9 @ 10¢
Pumice Stone, selected lumps.....	3 @ 6¢
Pumice Stone, powdered.....	2 @ 34¢
Pine Tar, bbls.....	\$2 @ \$2.25
Pitch.....	\$1.40
Plumbago, American, 7 lb.....	3 @ 4¢
Plumbago, Gun Powder Glazing, 7 lb.....	10¢
Plumbago, Shot Polish, 7 lb.....	10¢
Putty, in tubs.....	2 @ 2¢
Putty, in bulk.....	15¢ @ 2¢
Rosin—Common and Good—Strained, 1 lb.....	\$1.40 @ \$1.45
Rosin, E. & F.....	\$1.50 @ \$1.55
Rosin, G. & H.....	\$1.75 @ \$1.80
Rosin, I. & W.....	\$1.90 @ \$2.00
Rosin, M. & N.....	\$2.25 @ \$2.40
Spirits Turpentine, 7 bbl.....	30 @ 37¢
Stove Polish, Dixon's.....	50¢
Stove Polish, Rising Sun.....	50¢
Stove Polish, Gem.....	50¢
Stove Polish, Jet Black.....	50¢
Waste, No. 1 Cop.....	84¢
Waste, No. 1 White Machine.....	84¢
Waste, No. 2 Colored.....	64¢
Waste, No. 3 Colored.....	64¢
Waste, Washed Machine.....	84¢
Whiting, Spanish, 7 lb.....	50¢

Cincinnati.

Office of The Iron Age, Fourth and Main Sts., CINCINNATI, October 24, 1887.

Pig Iron.—There has continued to be a quiet but steady market for Pig Iron during the week, generally speaking, but this is said with a certain reservation. The volume of business in the aggregate has been fair, but the individual sales have been small and for immediate delivery. There is some inquiry for round amounts for next year's delivery, but they bore no fruit. But, while the sales are mainly of carlots, 100 and 200 ton lots, there have been a few sales of moment—namely, 1000 tons No. 1 Foundry Mahoning Valley Iron, made partially from Lake Ore, at \$21.50; also 800 tons Lake Superior Charcoal at \$23.25 delivered at Indianapolis, and \$24 delivered at Pittsburgh. There is some weakness being developed in the market which with the general statistical situation is only accountable for in one way. There is very little if any surplus iron at the furnaces, and many have contracts which will keep them busy until the first of the year, at least. Close observers of the situation have reduced their views of the amount of new iron, or rather of iron, the product of new furnaces, which will come upon the market during 1888; it was estimated that this output would be between 400,000, and 500,000 tons during the year, but recently the views of these observers have been gradually modified until now the estimate has been reduced one-half. On the other hand, old furnaces which have been working badly, and been repaired, are now in much better condition, and are supplying the market with improved grades. The consumption of iron continues heavy, and the outlook is bright for a continuation of this condition. The opinion is expressed that there will sooner or later be a coke famine in the South, and, as an illustration the fact is referred to that two furnaces which have recently spent \$75,000 upon their plants are now unable to obtain satisfactory fuel, either in amount or quality. The drift of these various facts, however, is that the price of iron should advance rather than decline,

while the current of the market is apparently in the other direction, and this is accounted for by the closeness or activity of the money market. While there is a more confident feeling in monetary affairs, the fact remains that such are the relations of supply and demand that the banks are enabled to command full rates, and he who would have a whole loaf must be contented with a half one. With the pork season near at hand, there is no encouragement for an immoderately easier market, but rather the contrary, during the winter months. It is observed that the borrowing demand for money is well distributed among various mercantile lines, and is indicative of a good volume of general business, and a comparatively remunerative one, too. The current cash prices for Pig Iron, f.o.b. cars at Cincinnati, are as follows:

Charcoal Foundry.	
Hanging Rock, No. 1.....	\$23.00 @ \$24.00
Hanging Rock, No. 2.....	22.00 @ 23.00
Southern, No. 1.....	21.00 @ 22.00
Southern, No. 2.....	20.00 @ 21.00

Coal and Coke Foundry.	
Ohio Soft Stonecoal, No. 1.....	20.00 @ 21.00
Ohio Soft Stonecoal, No. 2.....	19.50 @ 20.00
Southern Coke, No. 1.....	20.50 @ 21.00
Southern Coke, No. 2.....	20.00 @ 20.50
Southern Coke, No. 3.....	19.00 @ 19.50
Ohio and West Pennsylvania Coke, No. 1.....	21.00 @ 22.00
Ohio and West Pennsylvania Coke, No. 2.....	20.00 @ 21.00

Forge.	
Strong Neutral Coke.....	17.25 @ 18.00
Mottled.....	16.00 @ 16.50
Southern Coke.....	17.50 @ 18.00

Car-Wheel and Malleable Irons.	
Southern Car-Wheel.....	24.00 @ 26.00
Hanging Rock, Cold Blast.....	25.00 @ 27.00
Hanging Rock, Warm Blast.....	24.00 @ 25.00
Lake Superior Malleable.....	23.50 @ 24.50

Old Rails and Wheels.—There has been a fair demand for Old Rails with sales at \$24.75 @ \$25; Old Wheels have been more freely offered and easy at \$20 @ \$20.50 per ton.

Nails.—There has been a moderate jobbing demand, which has been readily met, rod @ 60¢ selling at \$2 @ \$2.15 per keg, and Steel at \$2.15 @ \$2.25 per keg, and other sizes at proportionate rates.

Manufactured Iron.—There has continued to be an active demand and a strong market. We quote: Bar Iron, 2¢; Charcoal Bar Iron, 3¢; Sheet Iron, Boiled, Nos. 10 to 27, 2 1/2¢ @ 3.30¢; Sheet Iron, Charcoal, Nos. 15 to 25, 3 1/2¢ @ 4 1/2¢ per lb.

Coal Market.

The Anthracite Coal situation has changed but little during the week, the reserved stock at shipping ports being steadily drawn upon to make good the deficiency caused by the miners' strike in the Lehigh region. The difficulty at the mines draws no nearer a settlement. A Hazleton dispatch says: Seven weeks ago the miners and mine laborers of the Lehigh region and those of the Schuylkill collieries who were refused the advance asked for by the Demand Committee of the various labor organizations went out on a strike. The locality most seriously affected is that immediately surrounding Hazleton, for out of the estimated 20,000 men standing out 14,140 were employed in and around the 52 slopes and breakers within a radius of 13 miles of that place. This district last year contributed as its quota to the production of Anthracite Coal 5,333,518 tons—one-seventh of the entire Anthracite yield. The operators remain resolute in the position originally taken, while the miners are fortified with assurances of aid from the labor organizations. At the office of the Lehigh Coal and Navigation Company, in Philadelphia, it was declared that there are no new terms to offer the miners. It was further stated that, in view of the fact that the State authorities had investigated the prices of Anthracite Coal and that the public is strongly deprecating any further advances in price, the company would not put Coal higher, and therefore could not advance the wages of their men. As further argument against making any advance in wages it was declared that the Lehigh Coal and Navigation Company had only made 1 1/2 per cent. last year upon their capital invested in Anthracite Coal properties. In New York City the more pressing demands for Coal have been made, but those who have heretofore depended on the Lehigh hard Coals are compelled to look elsewhere for their supplies. The hardship resulting is felt most severely by manufacturers along the lines of railway connecting with the mines. The Philadelphia Ledger remarks: "The line trade of the Reading and Pennsylvania Railroads is very short of the domestic sizes, and many consumers are being quieted by a partial filling of their orders. We are informed that during the past week a premium above the regular selling prices of from 25¢ to 50¢ per ton for 'spot' cargoes of Anthracite has been paid in several instances." Anthracite quotations at the New York loading ports remain as for some time past, as follows: Free Burning White Ash, Broken, \$3.80; Egg, \$4; Stove, \$4.35; Chestnut, \$4.25; Pea, \$3; Pittston is 10¢ @ 20¢ per ton higher, except Pea, which is \$3.20; Reading Hard White Ash, Broken and Chestnut, \$4; Egg, \$4.25; Stove, \$4.50; Pea, \$2.60. The so-called fancy brands are \$4.75 @ \$5.25, according to size. The Anthracite production for the last week was 728,000 tons—a decrease of 21,000 tons compared with last year, but since January there is an increase of nearly 3,500,000.

The Bituminous Coal trade is active, and at some points supplies are deficient. Prices range at about \$3.50 @ \$3.75, alongside, in

New York. Shipments from the mines of the Cumberland Coal region for the week were 63,670 tons.

"Port Liberty" is the name of the new Coal-loading depot at Communipaw, owned by the North River Coal and Wharf Company. The shipping capacity is 1,500,000 tons per annum.

The Philadelphia and Reading Railroad have issued notice to coal shippers that the rates of freight to the West will be advanced after the first week in November. This advance is necessitated by an adjustment of tariffs, made to comply with the conditions of the Interstate Commerce Law.

Imports.

The Imports of Iron and Steel, Hardware, &c., at this port from October 18 to October 24, inclusive, were as follows:

Iron and Steel.	
Pig Iron: Naylor & Co.....	250
G. W. Stetson & Co.....	150
R. Crooks & Co.....	100
Jas. E. Ward & Co.....	94
Crocker Bros.....	300
Jas. Leer & Co.....	75
Henderson Bros.....	50
Iron Ore: Naylor & Co.....	965
Spiegelheisen: Crocker Bros.....	270
Steel: Union Bridge Co.....	184
W. F. Wagner.....	38
A. Milne & Co.....	18
C. F. Baker.....	17
Montgomery & Co.....	11
R. H. Wolff & Co.....	11
Tomlinson & Co.....	7
J. Abbott & Co.....	5
F. S. Pilditch.....	6
Newton & Shipman.....	3
C. W. Power.....	3
Steel Rods: R. H. Wolff & Co.....	255
Naylor & Co.....	348
A. Heyn.....	209
Merchants' Despatch Company.....	10
Iron: A. Milne & Co.....	44
Steel Blooms: Naylor & Co.....	634
Steel Billets: J. Abbott & Co.....	147
Steel Sheets: Pierson & Co.....	13
R. F. Downing & Co.....	10
Steel Rails: Dana & Co.....	44
Steel Bars: Union Bridge Company.....	18
Ogden & Wallace.....	32
Steel Wire: Merchants' Despatch Company.....	49
Steel Hoops: Montgomery & Co.....	2
Old Steel: A. Milne & Co.....	62
Sheet Iron: T. B. Codrington & Co.....	57
Rivet Rods: G. Lundberg.....	61
Iron Bars: G. Lundberg.....	56
J. G. Wilner.....	1
Angles: A. Milne & Co.....	32
Tee Iron: Hodeliste & B.....	9
Ferromanganese: C. L. Perkins.....	1,000
Naylor & Co.....	25
Cut on Ties: Naylor & Co.....	103
S. E. Edgerly.....	52

Tin Plates.	
Boxes:	
Phelps, Dodge & Co.....	9,294
Naylor & Co.....	9,196
N. L. Cort & Co.....	5,404
Dickerson, Van Duzen & Co.....	3,497
Bruce & Cook.....	2,986
A. A. Thomson & Co.....	57
T. B. Codrington & Co.....	2,096
Merchant & Co.....	1,398
R. Crooks & Co.....	1,445
H. R. DeMitt & Co.....	400
C. S. Merick.....	32
Wheeler, F. & S.....	277
G. B. Morewood & Co.....	1,935
Frat Mfg. Co.....	930

Metals.	
Tin: Naylor & Co.....	Pounds.
American Metal Co.....	22,428
Hendricks Bros.....	22,400
Crooke Smelting & Ref'g Co.....	22,137
Nickel: McCoy & Sanders.....	2,857
Spelter: Naylor & Co.....	37,371
F. Osmond.....	33,069
Hendricks Bros.....	56,107
Zinc: R. Crooks & Co.....	275,625

Hardware, Machinery, &c.

Alexandre, F. & Sons, Ironware, cs., 10
Baur, C. M. vom, Hardware, cs., 3
Baker, Hermann & Co., Hardware, cs., 18; do., csks., 1; Arms, cs., 31
Baezfeldt, G. & Co., Hardware, cs., 1
Brockhauser, Hardware, cs., 7
Burkenschaw, W. C., Hardware, cs., 4
Folsom, H. D., Arms, csks., 8
Field, Alfred & Co., Hardware, cs., 1; Mds., cs., 20
Gould, R. S., Brass Foundry, cs., 3
Hazen Mfg. Company, Mch., csks., 5
Horrox, E., Hardware, cs., 4
Junge, F. W. & Co., Mds., cs., 10
King, Ezekiel, Hardware, cs., 7
Levi Bros., Hardware, cs., 2
Lau, J. H. & Co., Hardware, cs., 1; Arms, cs., 4
McCoy & Sanders, Hardware, cs., 5
McSorley, John & Son, Copperware, cs., 1
Merch. Desp. Co., Arms, cs., 6
Moore's Sons, J. P., Arms, cs., 6
McDermott, Steel Dies, 150
Overton & Co., Mch., pss., 78
Patt, H., Iron Hooks, bbl., 1; do., cs., 1; Bella, bbl., 1
Roessler & Hassbacher, Mch., cs., 1
Rotterdam, S. S. Co., Arms, cs., 4; Locksmiths' Tools, cs., 2; Cutlery, cs., 1
Sausfeld, Lorch & Co., Hardware, csks., 2
Schoverling, Daly & Gales, Arms, cs., 5
Schoverling, A., Arms, cs., 34
Stelhardt, A. & Bros., Hardware, cs., 4
Smith & Shaw, Mch., cs., 1
Sheldon, G. W. & Co., Hardware, cs., 7
Taylor, Thos., Mds., cs., 4; Hardware, cs., 6
Tryon, E. K. & Co., Arms, cs., 8
Tiedmann, T. & Br., Brass Rollers, 1
Von Cleff & Co., Ironware, cs., 14
Von Dengerke & Delmold, Hardware, cs., 2
Ward, Aslie, Mds., cs., 4
Winchester Rep. Arms Company, Gun Barrels, cs., 4
Windmuller & Roelker, Arms, cs., 4
Wiesbusch & Hugel, Mds., cs., 4
Order—Hardware, bags, 119; Mch., cs., 5; Hardware, csks., 5

Iron and Metals Warehoused from October 18 to October 24 inclusive.

Tons.	
Pig Iron: Jas. Leer & Co.....	38
Rivet Rods: G. Lundberg.....	38
Cotton Ties: S. E. Edgerly.....	50
Antimony: Jas. E. Pope, Jr.....	34
Tin Plates: Dickerson, Van Duzen & Co.....	166
A. A. Thomson & Co.....	499

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L. COES'
GENUINE IMPROVED
Knife Handle
PATENT
Screw Wrenches
MANUFACTURED BY
L. COES & CO.,
Worcester Mass.
ESTABLISHED IN 1839.




Patented July 6, 1880. Patent July 8, 1884.
Registered March 21, 1874.

Sectional view illustrates our NEW KNIFE HANDLE, showing Malleable Iron Frame and Shank of Bar keyed into position.
Straight Bar, Extra LONG NUT FOR SCREW IN JAW

The Best Made and Strongest Wrench in the Market
Send for Illustrated Price List and Circular.

J. C. McCARTY & CO.,
NEW YORK,
Sole Agents.

Hardware Dealers Take Notice,

and buy where you can get the best quality at the lowest price, thereby not only satisfying your customers, but also putting money in your own pocket.

Our Eureka Patent Flexible Back Saws, the teeth of which are hard, the back being soft, thereby preventing them from breaking in two, have been greatly improved and are giving the best satisfaction. Our Crescent brand of Hack Saws are hardened all through with uniform temper, and are the best Hack Saws so tempered.

We are now preparing to supply the wants of the trade according to their preference. Hardware Dealers run no risk by buying from us either our Eureka or Crescent brand of Hack Saws on our recommendation, as we give them the option of returning the first lot to us at our own expense any time within three months from date of invoice. Correspondence solicited.

Henry G. Thompson & Sons,

Cor. Elm and State St., New Haven, Conn.,

—MANUFACTURERS—

Flexible Back Band Saws for Cutting Metals,

Hack, Meat and Kitchen Saws and Frames.

SEND FOR CIRCULAR.

BRANCH OFFICE, 51 Leonard St., New York City.


JOHN W. McCLELLAN, Pres. CHARLES R. FOWLER, Vice-Pres. HENRY S. LANPHER, Sec'y & Treas.

American Tin Zinc Company,
LIMITED,
Factory, SEYMOUR, CONN. 85 Beaver St., New York, Telephone Call, "PEARLESS."

MANUFACTURERS OF
TIN ZINC,
W. J. WILDER'S PATENT, March 10th, 1885.

A New Metal especially adapted for Roofing, Lining Refrigerators, the Manufacture of Britannia Ware and all Articles where Spun Metals are Required. An excellent Substitute for Tin Copper and White Metals.

No. 2. **Adams Swing.**



THE F. F. ADAMS CO.,
Send for Catalogue of 1887.

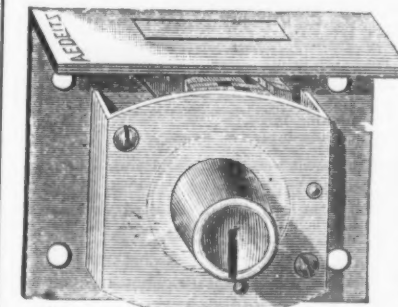
The popularity of the Adams Swing in the short time it has been introduced is phenomenal. The Swing is constructed on original mechanical principles. The frame is so interlocked as to be prevented from sagging, even if the bolts are loose, a feature not possessed by any other swing manufactured. There are two sizes manufactured, adapted for both lawn and parlor. No. 1, or largest size, has standards 9 feet to 10 inches long, with a spread of about 6 feet, and 5 feet in width. The frame work is so constructed that by taking out two bolts the standards will close up, and by taking out the bolts of the two cross pieces the frame can be closely folded ready for shipping. The Swing can be put up or taken down ready for packing in 10 minutes.

The weight of the Swing is a little less than 100 pounds. It is very strong, having been tested by four men whose weight aggregated over 800 pounds.

The No. 2, or parlor size, has standards about 7 feet long, and otherwise proportioned in size, weighing less than 75 pounds. They combine simplicity of construction, beauty and strength, and can be operated with ease by small children in the swing.

For Sale by all Leading Dealers.

A. E. DEITZ. GOODSELL LATHE.



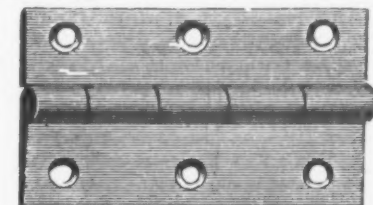
No. 51 Lock.

J. C. McCARTY & CO., Agents,

97 Chambers and 81 Reade Sts.,

NEW YORK.

Factory, BROOKLYN, E. D., N. Y.



W. & J. TIEBOUT,

MANUFACTURERS OF

BRASS, GALVANIZED & SHIP CHANDLERY

HARDWARE.

Nos. 16 & 18 Chambers Street,

NEW YORK.

The "Superior Wringer."

(Iron Frame.)



Fully Warranted. Has Patent Adhesive Rolls,

Best Steel Springs, Malleable Iron Crank.

Send for fully illustrated Catalogue and Price-List of thirty different styles and sizes of Wringers.

BAILEY WRINGING MACHINE CO.

WOONSOCKET, R. I.



The Reiter Improved

"CHAMPION"

Self-Locking

TRANSOM LIFTER

F. A. REITER,

Manufacturer,

11-13 S. Canal St., CHICAGO.

A represents the stationary

guiding and locking bar which

receives the operating rod C.—

B forms with arm E & bracket

F the connection with the transom.

D is the adjustable guide to

hold the guiding & operating

rod to the door casing. Handle

G in combination with parts A

& C forms a novel locking de-

vice and will hold the transom

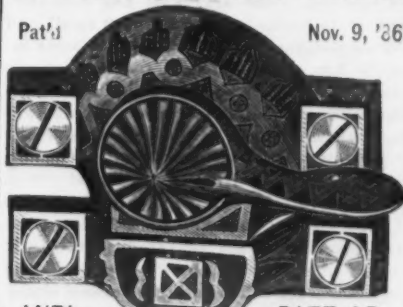
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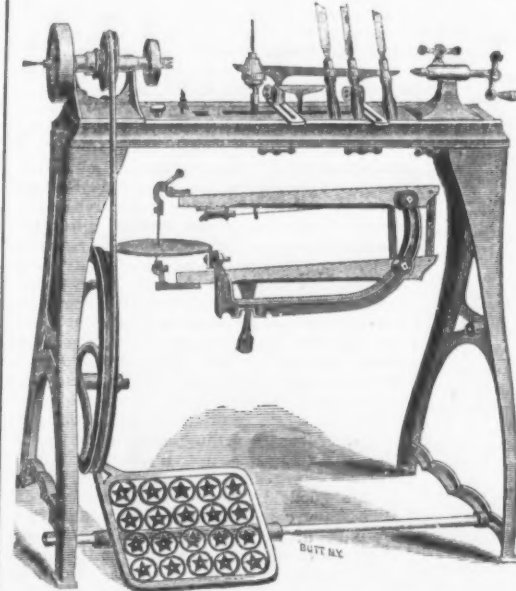
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These two machines are taking the place of all others, and are now the most in demand throughout the world.

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MECHANICAL.

Water-Tube Boilers.

From an article on "Water-Tube Boilers" recently published in the *London Engineer* we extract the following:

It is a fact not generally known that the whole of the steam produced in a large boiler may arise from one or two small centers of conversion. We have ourselves seen a glass model of a Cornish boiler—that is to say, the flue of the boiler was of copper, while the ends and shell were of glass. The water was heated by a Bunsen flame. Looking down on the top of the water, it was seen to be apparently all in violent ebullition. The appearance was deceptive. Looking through the glass ends, it was seen that the whole of the steam was rising from one point, not larger than the head of a pin, on the top side of the copper flue. From this spot a great rush of bubbles rose unceasingly. The main body of water was in very slow motion, as shown by the movement of small impurities. By shaking the boiler the center of conversion changed its place to some other point. Apparently the place was determined by the existence of some small roughness or inequality in the metal. Now, in a boiler of the ordinary type, one or a few centers of conversion may suffice for the whole body of water, and there is, therefore, really very little frothing or foaming. The boiler is, for the most part, full of "solid water." In the case of the water-tube boiler this can scarcely be the case. Each water tube must generate steam, and near the fire there can be very little "solid water" indeed. Every exertion has, therefore, to be made to keep the tube well supplied with water, and this is a very difficult thing to accomplish. Let us take a glass tube, communicating at each end with a vessel containing water, and let the tube be put on an incline, one end higher than the other. Apply heat to the tube and watch the result. So long as the water is below the boiling point a considerable current will be set up, the water flowing toward the highest end of the tube; but when once the water has been raised to the boiling point, it can get no hotter, and being all of the same density, circulation all but ceases. It would cease entirely if it were not that external radiation, by promoting the cooling of the water, sets up downward currents in the vessels coupled by the glass tube. In a little time ebullition begins, and the steam being light runs merrily along the tube to the highest end, and so ascends to the surface of the vessel. To all appearance, violent circulation is now taking place in the glass tube. This is, however, a pure delusion; scarcely any change of water may be taking place, the phenomena resembling that of waves, which appear to move, the form only moving, not the water. If the boiler is hard pressed, and if the tubes are long and small in diameter, the steam may be made so quickly in the tube as to blow the water out before it, leaving the tube dry for the moment. This is a result which is not to be coveted. In practice, indeed, it is well known that the production of steam in water-tube boilers is so irregular that large receivers have to be provided to prevent water from passing over to the engine. The more moderately the boiler is worked, and the greater the surface provided for the supply of a given amount of steam, the better are the chances of success. When there is plenty of boiler-power, the water-tube boiler can be used with advantage and perfect safety, and it has a great deal to recommend it; but, as we have said, it is quite unsuitable for driving or forcing.

New Independent Reversible Jaw Chuck.

We illustrate in the accompanying engravings a new line of independent reversible jaw chucks, put upon the market by the D. E. Whiton Machine Company, of New London, Conn. They are the invention of Mr. L. E. Whiton. The improved arrangement of parts in this chuck is clearly shown. The body of the chuck is a single heavy casting, strongly proportioned, and has radial slots open at both ends, in which the jaws slide. Beneath these slots are parallel cylindrical recesses, into which the screws are fitted, and inserted in a radial direction. This construction is clearly shown in the sectional view, Fig. 3. The screws, which are of large diameter, are grooved or necked down near the center, and are held in place in the chuck by a steel

way than when the recess is in the wrench, because both squares are always in sight.

By the construction thus described a number of advantages are obtained. The screw thread extends fully to the outside of the chuck, so that the jaw has greater traverse than in other independent chucks, and work larger than the diameter of the chuck may be safely held. The entire thrust of the screws

furnished with each chuck, the latter being hardened where it comes in contact with the screw, which is also hardened. The chucks are made in sizes from 2 to 24 inches in diameter.

Boiler-Shell Drilling Machine.

Messrs. Thomas H. Dallett & Co., of Philadelphia, have this year designed and built two styles of machines for drilling rivet holes, stay-bolt holes, &c., in boiler shells. The advantage of drilling a shell after the plates are bent and in place will be appreciated by all, as the accurate laying out which is necessary when the plates are drilled separately is not required, and there is but one handling for both plates in both the laying out and the drilling.

The A style machine consists of a turntable on which the boiler shell is set, on end, and around which are placed three or more uprights carrying horizontal drilling heads. The novel feature of the machine consists in the use of the driving apparatus of their portable drills for driving the drilling heads, thereby obtaining a simple and effective arrangement.

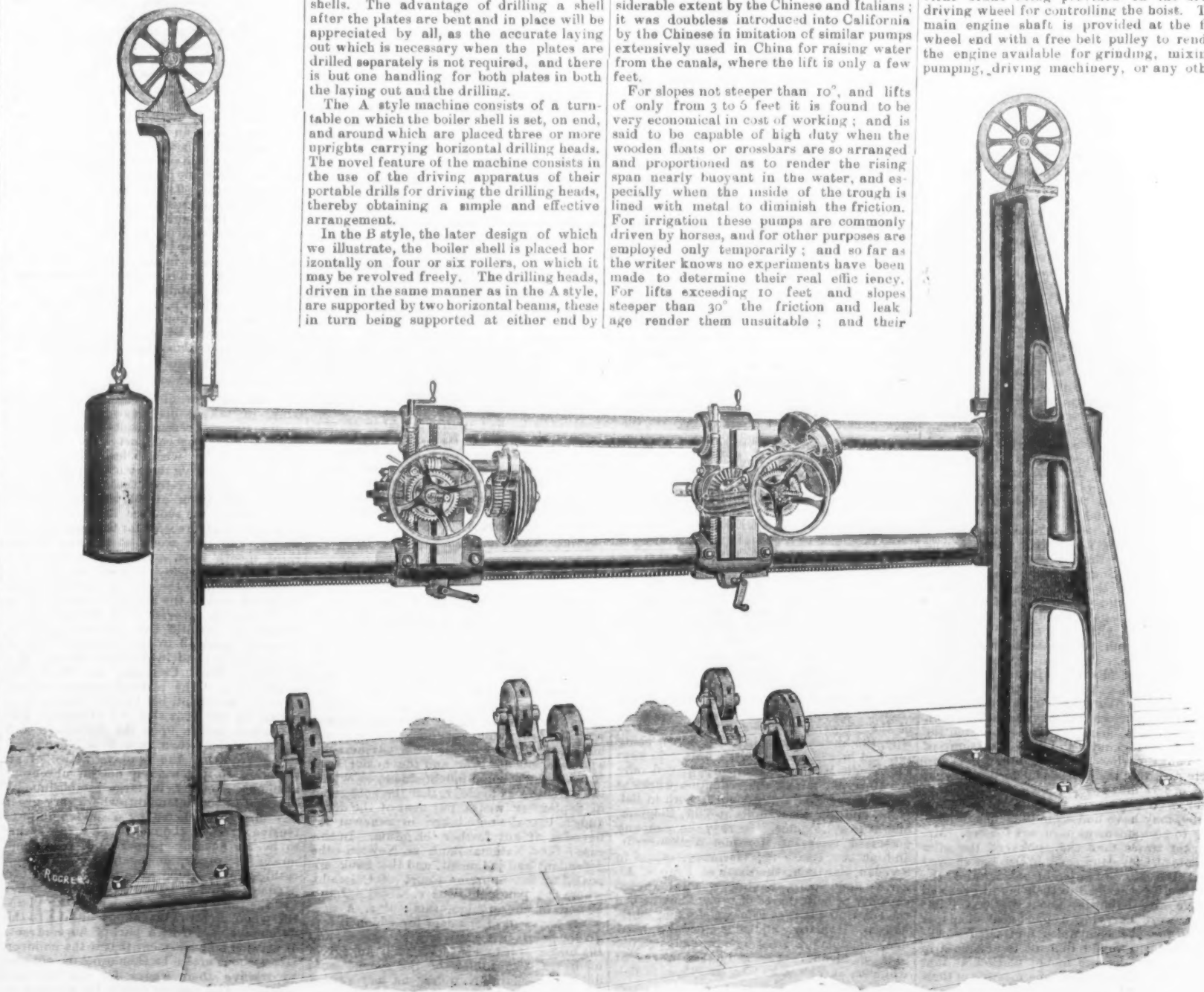
In the B style, the later design of which we illustrate, the boiler shell is placed horizontally on four or six rollers, on which it may be revolved freely. The drilling heads, driven in the same manner as in the A style, are supported by two horizontal beams, these in turn being supported at either end by

the under span ascending through an open trough carries up water from a ditch or pit and delivers it into a launder or flume at top. The endless bands are sometimes made of india-rubber or cotton canvas; but more commonly consist of a pair of ropes, upon which the crossbars, having their ends split, are clamped at regular intervals by means of screws. It is a very cheap contrivance, and for low lifts is still employed to a considerable extent by the Chinese and Italians; it was doubtless introduced into California by the Chinese in imitation of similar pumps extensively used in China for raising water from the canals, where the lift is only a few feet.

For slopes not steeper than 10°, and lifts of only from 3 to 5 feet it is found to be very economical in cost of working; and is said to be capable of high duty when the wooden floats or crossbars are so arranged and proportioned as to render the rising span nearly buoyant in the water, and especially when the inside of the trough is lined with metal to diminish the friction. For irrigation these pumps are commonly driven by horses, and for other purposes are employed only temporarily; and so far as the writer knows no experiments have been made to determine their real efficiency. For lifts exceeding 10 feet and slopes steeper than 30° the friction and leakage render them unsuitable; and their

Combined Gas Engine and Hoist.

The vertical type of Otto engine is now being turned out in England combined with a hoist. The engine, as built for this purpose, will work up to 2 horse-power, with a gas consumption costing only about 1 cent per hour. The hoist is worked by friction wheels, and is designed to lift 280 pounds at the rate of 120 feet per minute, an efficient brake being provided on the drum driving wheel for controlling the hoist. The main engine shaft is provided at the fly-wheel end with a free belt pulley to render the engine available for grinding, mixing, pumping, driving machinery, or any other



BOILER-SHELL DRILLING MACHINE, BUILT BY MESSRS. THOS. H. DALLETT & COMPANY, PHILADELPHIA, PA.

in gripping the work is received on hardened steel shoulders, which are very durable. Consequently the backlash from end wear is very much reduced. The screws may be easily removed if desired, but are held in place in the chuck so that they will not fall out or become at all displaced when the jaw is removed. Should the jaw and screw become stuck together from lack of oil or any

uprights, the weight of the heads and beams being counterbalanced, so that the whole can be readily raised or lowered. The heads are easily moved horizontally by means of a pinion gearing into a rack on the lower beam, and there is an adjustment between the beams regulated by a screw. These two motions give the operator a quick and delicate means of setting the drill after the shell has been turned to nearly the required place. Care has been exercised in the design of the head to make it handy, so that the operator, standing on either side, has full control of both crank handles, which materially assists in setting the drill quickly. The machine is adapted for drilling all sizes and kinds of boiler shells, from large marine work to small stationary, and can be built of any length and with any number of heads.

Early Irrigating Machinery on the Pacific Coast.

In a paper on "Irrigating Machinery on the Pacific Coast," recently presented to the British Institution

use is being abandoned as better methods are introduced.

Pipes for Water Power.

Pipes for turbine installations should not be longer than is absolutely necessary, owing to a loss by friction in the pipes, and as the friction also increases in the same proportion as the speed of the water in the pipes the speed should not exceed 3 feet per second, which has been proved to be about the most advantageous rate. Of course the size of the pipes has to be chosen to secure such a speed. From end to end they should be equal in diameter. Any difference in the section, or a decrease of same, will cause friction and loss of efficiency, as every increase or decrease in the section alters the speed of the water, and consequently causes it to whirl at that particular part of the pipe which is not of uniform section. Sharp bends should be carefully avoided, but if some bends are necessary they should be arranged on an easy curve, the radius of which should not be less than double the diameter of the pipe.

Paper Axle Boxes.

According to a current account experiments are being made on Prussian railways with axle boxes fitted with bearings of vegetable parchment in place of brass. The parchment is strongly compressed before being used, and it is thoroughly dried to prevent subsequent shrinkage. Wooden rings are placed on the outside of the bearings, fitting the collars of the journal. An emulsion of water and oil and all the mineral oils are used as lubricants. The parchment soon becomes impregnated with oil, and is able to go a long time without a renewal of lubrication. It is between the body of the journal and the thin edge of the parchment segments that friction takes place. The claim is made that these compressed paper bearings make a tough material that is superior to metal.

Leather Link Belting.

One of the objects of interest at the Mechanics' Fair, now held in Boston, is some self adjusting leather link belting, made by Mr. Chas. L. Ireson, of 97 High street, Boston, Mass. The links composing this belt are stamped out of proper shape, and are provided with holes requisite for the fastening of rivets. They are put together in a manner similar to that adapted in fastening the links of flat-link chains. Two longitudinal halves of the link-belt thus put together are flexibly united by means of fl-shaped joints, thereby permitting the belt to conform to the crown of the pulley over which it runs. It is claimed that these belts convey and deliver power with absolute steadiness, and with much less belt tension than is necessary with ordinary belts. A corresponding decrease of frictional resistance of shafts is said to be obtained.

class of work, when not engaged in hoisting. This new combination undoubtedly meets a real want.

The Archer Fuel Gas.—The Bethlehem Iron Company, of Bethlehem, after experimenting for eight weeks with the Archer gas fuel process in two of their ingot reheating furnaces, have decided to substitute that gas for the Siemens regenerative system. They have made a contract for two additional plants, which are now being built. The engineers of the company express their entire satisfaction with its efficiency and economy. The Archer process, which differs in important points from that described by us some years since, is being used for firing two brick kilns at Haverstraw and a Mathey revolving furnace at the works of the Union Cement Company, at Rondout. Contracts have also been closed with the rolling mill and the tool works at Terre Haute, with the Atkins saw works, at Indianapolis, and the De Pauw Plate Glass Company, at New Albany, Ind. Two plants are also running in Europe. Mr. J. B. Archer has a factory at Newark, N. J., where the machinery used is made.

The Rio Tinto Company have issued a circular to their shareholders containing the following: "The deliveries of pyrites under existing contracts have continued to be satisfactory, and indicate an amount of consumption for the whole year of fully 360,000 tons, against 347,000 last year. Pyrites contracts have also been concluded for consumption in this country during the next three years (1888, 1889 and 1890) which, taken along with the contracts for consumption abroad, promise a total delivery of about 400,000 tons per annum, at the same prices for sulphur, and on the same terms and conditions as those now running. The production of copper at the mines is more than maintained. With the increase in this department, your directors are able to intimate that the earning power of the company is not less than it was last year, notwithstanding that the prices realized for copper have averaged £1 per ton lower. Since the annual general meeting arrangements have been made for the floating debt, without the necessity of making any public issue, and within the powers of the board under the statutes of the company. Your directors have now to declare an interim dividend of 3 shillings per share, free of income tax, payable on the 12th November next."

One of the engines on the Third Avenue Elevated Road now burns petroleum fuel on all the trips. The recent tests are said to have been satisfactory to the officials of the road, but Colonel Hain is reported as saying that he is now dickering about the price and supply of petroleum residuum and figuring as to its relative cost to coal before going ahead with petroleum-burning engines.

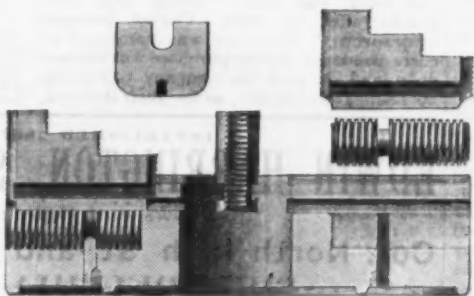


Fig. 3.—Sectional View.

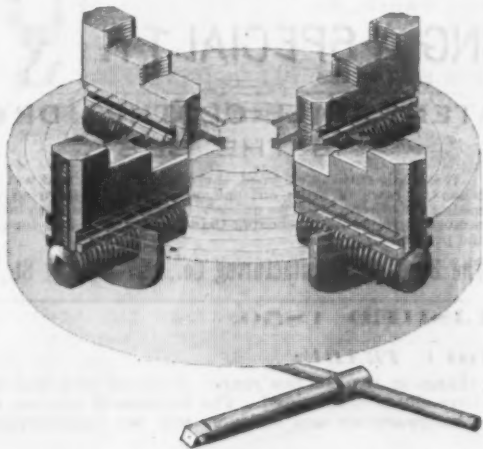


Fig. 1.—Top View.

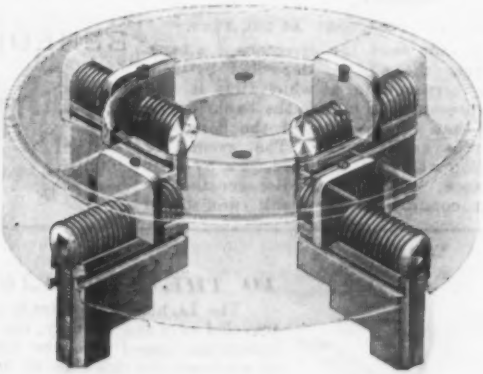


Fig. 2.—Back View.

INDEPENDENT REVERSIBLE JAW CHUCK, MADE BY THE D. E. WHITON MACHINE CO., NEW LONDON, CONN.

plate having a U-shaped bearing, as shown. This plate is fitted to a groove in the frame of the chuck, and inserted from the back side after the screw is in place. It is thoroughly hardened and receives all the thrust of the screw. The screws have square recesses in their outer ends to receive the wrench, which is more easily applied in this

other cause, they can be removed from the chuck and separated without injury. The workmanship and material are excellent throughout. Both the screws and jaws of all sizes are made from bar steel. The jaws are carefully hardened and in all the sizes can be easily reversed, which is a feature of great convenience. Bolts and wrench are

of Mechanical Engineers, Mr. John Richards, of San Francisco, re-marks:

One of the earliest appliances for raising water in California was the Chinese pump, which consists of an endless band traveling round pulleys at top and bottom of a moderate slope, and carrying a series of wooden floats or crossbars fixed on its outer face;

The Closing Down of Gogebic Mines.

Considerable attention has been directed by recent press dispatches to the condition of the Gogebic mines, and a good deal that is sensational has been put before the public. It is certain that there has been a complete collapse of the many schemes which have been floated during an era of wild speculation. While it is a matter much to be deplored that the losses inflicted upon small holders will cause much suffering, the facts most immediately interesting to the iron trade relate to the position of those mines which have been and are still large producers. The Colby, the heaviest shipper of the range, is reported to have reduced its force and to have decided to limit its season's shipments to 275,000 tons. The company have had some trouble with the quality of their ores, notably with consumers in the Pittsburgh district, the chief difficulty being the manganese contents and low percentage of iron. The Norrie, which follows next, controlled by the North Chicago Rolling Mill Company, and the Ashland, which is worked by parties identified with the Wisconsin Central Railroad, are not likely to be affected. The Aurora, which shipped 146,467 tons up to the 20th, and is controlled by Moore, Benjamin & Co., is now running and will continue to run. The same is probably true of the Germania and Montreal, the latter controlled by Tuttle, Oglebay & Co., of Cleveland, and of a number of mines of minor importance. Interest centers, however, in the two groups of mines known as the Moore-Benjamin and Burton properties, because of the consolidation which has been lately vigorously pushed by men of national reputation. The position of the former was explained by Mr. Richard A. Parker, mining engineer of the company. Mr. Parker stated on the 24th inst. that the only mines of the Moore-Benjamin Company which had been closed down were the Prospect Hill, Moore, Iron Chief, Bourne and Atlantic, the Kakagon, Nimikon, Bessemer and Sunday Lake being still in operation. Up to October 20 the Kakagon has shipped 49,511 tons, and had on that date 3078 tons at the docks; the Nimikon followed with 22,311 and 2556 tons respectively, and the Bessemer with 15,680 and 424 tons. The monthly expense of running the Moore-Benjamin mines was about \$35,000. The coke strike and the subsequent ore-handlers' strike delayed shipments to furnaces and payments by them, the situation being exaggerated by the money stringency and the caution of the banks earlier in the month. It is possible, too, that the postponement delivery of rail orders into 1888, known to amount to over 20,000 tons in the case of one mill alone, may have had some influence in leading to postponement of orders for ore. Mr. Parker states that the books of the sales agents at Cleveland early in October showed that the Moore-Benjamin mines and the Aurora together had to their credit over and above any liabilities about \$95,000. But they were carrying a good deal of paper from furnace companies and steel works which it was found difficult to negotiate in the condition of the money market at that time. The company called a meeting of their miners, placed the position before them, and gave them acceptances, payable November 4th, for August and September wages. Efforts are now being made to adjust these financial difficulties, but it seems probable that none but the immediately profitable mines will continue to work. It is reported that the Burton properties have suffered from similar causes, but that aid has been extended to them by the managers of the consolidation.

Mr. S. B. Dorsey informs us that work at all the principal mines of the Lake Superior and Bessemer companies will be confined to development work, and to improving the methods of working, the only large mine which will ship ore being the Iron King of the Bessemer Company, which has contracts with Chicago and Joliet mills, and can ship by all-rail during the winter.

Another circumstance which would make closing down desirable, even were it not for the troubles alluded to, is the high lake freights. The leading mines contracted for a good deal of their tonnage at rates, from Ashland, fluctuating from \$1.80 to \$2.20. Some charters were closed at \$2.50, and lately \$2.65 is asked and has been paid. Adding 80 cents a ton for rail freights, little chance for a profit remains to any but the largest and best developed mines, which mines being opened out are a steady draw in on the resources of the adventurers. It is no secret that the latter fact has been keenly felt by the Moore-Benjamin and Burton interests. However the present trouble may affect individual concerns, it has pretty thoroughly ended the "booming" of an earlier period. The feverish development in the Gogebic range will give way to quieter, steadier and sounder progress. It has brought values to nearer their natural level, and after the liquidation now in progress the Gogebic will occupy a position similar to that of the older districts. A number of the large mines will be regular shippers of ores, at prices remunerative to their owners, while a large number of smaller properties will enjoy sporadic spells of prosperity, as mines similarly situated do in the older regions. It is stated by one largely interested in the Gogebic range that, with the exception of the Ashland, Norrie, Germania and one or two other mines, the properties have been very poorly worked and developed, in the eagerness to make a record with them, and that it will take some time to get them into good shape.

Our Cleveland correspondent telegraphs to us as follows:

The rumors of a collapse on the Gogebic range are undoubtedly grossly exaggerated. The foundation for the reports lies in the embarrassment of firms advancing money to the Bessemer and Lake Superior Mining companies. The failure of several mines to meet expectations has increased the apprehension of holders of Gogebic interests. The disasters which have recently overtaken certain Gogebic investors seem by no means general. Fictitious organizations designed to bleed shareholders rather than to produce ore are largely responsible for the gloomy rumors afloat. The Gogebic shipments to date are 1,180,000 tons, and contracts are

to day being made for next season. The Aurora Mine is to day reported sold to Boston parties.

In regard to the above it may be stated that negotiations are now pending between Moore, Benjamin & Co. and Walter Patter, Evans and others of Boston for the sale of the Aurora Mine, but that that sale has not yet been consummated. The figure named by our Cleveland correspondent is excessive, the price under consideration being \$1,200,000, or at the rate of \$12 a share.

The Vieille Montagne Zinc Company.

Early this year the famous Société Anonyme des Mines et Fonderies de la Vieille Montagne, as is their full title, completed the fiftieth anniversary of their existence, the occasion being seized by the management to review their history during that period. Some of the figures are interesting generally. It appears that during that time the gross profits of the company, after deducting interest on loans and bonus to administration, amounted to 130,336,117 francs, which were distributed as follows: Dividends, 73,899,800 francs; special reserve, 1,000,000 francs; written off, 37,204,817 francs. The difference, 18,231,500, is credited on the books as reserve in concessions, mines, plant, &c. The average profit during the whole period has been 2,606,723 francs; the net returns, 1,108,726 francs. On an average the shareholders have received 20.55 per cent. per annum, so that during the period of 50 years the money invested has been drawing interest at the rate of 5 per cent. annually, and has been returned six times over again, no account being taken of the present premium at which the shares are valued. In 1877 the production was 1833 tons. During the period from 1838 to 1846 it had risen to 4503 tons, produced at a profit figuring 1,275,960 francs. From 1847 to 1856 the average annual output was 11,062 tons, the profit rising to 2,705,252 francs. From 1857 to 1866 the make had risen to an average of 26,785 tons, and the mean profits to 3,492,383 francs. During the decade from 1867 to 1876 the company produced 40,316 tons on an average annually, at a profit of 2,893,081 francs. From 1877 to 1886 the average annual output was 48,427 tons, with an annual average profit of 2,666,934 francs. During the 50 years the total make of the company has been 1,319,074 tons of zinc, the highest make in any one year being reached in 1884 with 52,354 tons. In 1837 the Vieille Montagne company owned only the Moresnet mines, the reduction works at Angleur and at Saint-Léonard, both in Belgium, and the sheet mills at Tilff, Belgium, and at Bray, France. In 1887 the company possessed mines at Moresnet-Welkenraedt, and at the Bensberg, Germany, mines in Sweden, Sardinia, the south of France, Algeria and Spain, having a total annual capacity of 90,000 tons of ore. They owned the roasting plant at Flône, Belgium; Oberhausen, Germany, and at Amberg, Sweden, capable of roasting annually 46,000 tons of blende. The reduction works at Angleur, at Valentin-Coeq, at Flône, in Belgium, at Borbeck, Germany, and at Viviez, in France, have a total annual capacity of about 54,000 tons of zinc. The rolling mills of Angleur, at Tilff, Belgium, at Bray, and at Dangu and Panchot, in France, and at Oberhausen, Germany, can roll annually 55,000 tons of sheet zinc. The zinc white works at Valentin-Coeq and at Levallois-Perret, in France, can produce more than 10,000 tons oxide. During the time under review the company have paid in wages 200,179,581 francs, the average rising from 1.35 francs per man per day to 2.09 francs in 1851 to 3.11 in 1873, fluctuating between 3.09 and 3.24 francs since that time. The force employed was 932 in 1837. It went beyond 1000 in 1841; it rose to 2083 in 1851, reached 6763 in 1855, and went up as high as 7103 in 1878. Since then it has declined with some fluctuations, until in 1886 it was 5900, upon whom depended 12,826, making a total population dependent upon the company for their income 18,726. At one time in 1878 the number was 23,220. Such is the record shown by the greatest zinc producing company in the world, without, we believe, a single exception.

In cupolas having tuyeres in two tiers, the upper tuyeres, designed to burn the carbonic oxide produced in the lower zone, are kept closed and inactive while the heating-up charge of coke is being consumed. Considerable loss of heating power takes place in consequence by the escape of carbonic oxide during the heating up of the cupola. To utilize this combustible gas Mr. Hamélin, in 1885, constructed cupolas with three series of tuyeres, at different levels, the third series opening into the body of the cupola at an elevation of 7 feet above the lowest series, where the body of coke has not yet reached the point of ignition, and where the air introduced in excess can only burn the carbonic oxide. This gas is thus utilized by reduction during the whole of the period of melting, inasmuch as partially to fuse the metal in the uppermost region. To augment the vertical range of action of the uppermost series of tuyeres, and so to

obviate the liability to partial chilling of the partially melted metal, the third series of tuyeres is placed in an oblique plane, so embracing a greater volume of the cupola and a larger mass of charge. With a consumption of from 4 pounds to 5 pounds of coke per 100 pounds of the cast iron, not including the fuel for heating up, a very hot and very pure melting is produced.

John B. Cornell.

John B. Cornell, head of the well-known firm of J. B. & J. M. Cornell, iron founders, of No. 141 Centre street and No. 524 West Twenty-sixth street, died yesterday morning at Lakewood, N. J., aged 66 years. He had been in ill health for several months, and last week suffered a severe attack of bronchitis.

Mr. Cornell was born at Far Rockaway, L. I. He came to this city when a boy, and learned the iron-founder's trade in the establishment of Cornell, Althouse & Co., the head of which was his brother George. In the spring of 1847 he started in business for himself in partnership with his brother, William W., under the firm name of J. B. & W. W. Cornell. After the death of Wm. Cornell, in 1870, a son of the senior partner was associated with him, and the firm became J. B. & J. M. Cornell. The house have done a very extensive and steadily increasing business, chiefly in the line of architectural iron work.

For many years Mr. Cornell served as a trustee of the Broadway Savings Bank. Since 1867 he had been a member of the Union League Club. He was a very active member of the Methodist Episcopal Church, was liberal in his gifts to it, and was president of the board of trustees of the Drew Theological Seminary. Mr. Cornell leaves a widow, two sons and five daughters, three of whom are married.

Latest Legal Decisions.

PARTNERSHIP—CHANGE OF FIRM—NOTES.

Todd & Fairchild were a firm and N. was a silent partner, and on September 15, 1882, T. & F. gave their firm note for \$1500, at 90 days, for their debt. On October 2, 1882, N. retired from the firm and F. took his place therein, also as a silent partner. The note was not paid, but a new note was given for it, also at 90 days, and signed with the firm name, but the holder was not informed of the change in the partnership. The note was not paid, and the holder sued N. upon the original indebtedness, to which the defense was made, 1, that the note given in September was a payment of the debt; and, 2, that the note taken in renewal relieved it of any further obligation. In this case—First National Bank vs. Newton—the defendant had judgment, and the bank appealed to the Supreme Court of Colorado, where the judgment was reversed. Judge Macon, in the opinion, said: "1. A note is not payment of the debt for which it was given, unless it is expressly so agreed, and the maker is bound to show such an agreement. 2. The taking of the second note did not discharge N. unless he had settled his amount with the firm, and there is no proof of any such settlement. He is not discharged by it."

SURETYSHIP.

B., an executor, in 1886 sued a bank to recover trust funds, which it had knowingly taken from a trustee in payment of his debt to it. The plaintiff's testator, as surety for the trustee, had paid for his defalcation in using certain stocks to secure the indebtedness of his firm to the bank in 1864. The following year the bank became a national bank, and two years later, at the request of the trustee, it sold the pledge, knowing it to be the property trust, and applied the proceeds to the payment of the firm's debt. The surety's executor brought suit on the ground that he became subrogated to the right of the creditors, who here were new trustees appointed upon the removal of the defaulting trustee. In this case—Blake vs. Traders' National Bank—the Supreme Judicial Court of Massachusetts, gave the plaintiff judgment. Judge William Allen, in the opinion, said: "1. We consider it to be settled that when the sureties of the trustee have been compelled to answer for the breach of his trust, they are subrogated to the rights of both the trustee and the beneficiary against those who have participated in his wrongful act. The bank here was clearly informed that the trustee had no title to this stock except as trustee. 2. The bank sets up the statute of limitations in defense, but the remedy against a trustee or his transferee, with knowledge of the trust, is not affected by the statute of limitations. The plaintiff must have judgment."

BANKING—DIRECTORS AS TRUSTEES.

A depositor sued the directors of a bank to recover the amount deposited by him after a certain date, at which time it had been represented to him at the bank by its cashier that the business of the bank was prosperous and paying. The ground of the action was that the directors, by their negligence, had failed to discover the insolvent condition of the bank, and so had

become parties to the misrepresentation of its insolvency, inasmuch as they were the trustees of all persons having business relations with the bank. The directors contended that they were the representatives of the stockholders, and to them only they bound as trustees. Plaintiff had judgment, and defendants took the case—Delano vs. Case—to the Supreme Court of Illinois, where they were again defeated. Judge Scholfield, in the opinion, said: "1. The directors of a bank are trustees for depositors as well as for stockholders; 2, they are bound to the observance of ordinary care and diligence, and, therefore, are liable for injuries resulting from negligence; 3, the defendants did not observe due care and diligence, or they must have discovered that the bank was in an insolvent condition and quite unable to continue business, and the public would not have been imposed on had they not failed to perform their just and reasonable duty. The evidence to show that the directors did not properly supervise the business of the bank is slight, but the jury were satisfied with it, and we will not interfere with their verdict. These propositions of law are, in our opinion, free from objection, and are sustained by authority. Thompson on Liability of Officers, p. 395; Morn on Banking, p. 133; and Wharton on Negligence, at action, 510, so state the law; and the Courts of Louisiana, Kentucky, Tennessee and Rhode Island have made decisions to this effect."

MASTER AND SERVANT—WAGES.

G., an employee of a manufacturing company, in taking his wages for the first month signed a receipt containing this provision: "Employees must give 14 days' notice when they wish to leave our employ. If they do not give the notice required, it is agreed and understood that they forfeit all that is due them at the time they so quit work without the required 14 days' notice." G. signed a like receipt for the next month's wages, and quit work at the end of the third month upon a notice of a day and a half. The company refused to pay the wages earned, on the ground that they were forfeited, and in the action to recover them it set up the provision of the receipt to defeat it. Plaintiff had judgment, and the company appealed to the Supreme Court of Pennsylvania, and in deciding the appeal—Pottsville Steel Company vs. Good—the court said: "The plaintiff was not obliged to sign this receipt, but having done so he is bound by the provision of forfeiture. The defendant insists upon the forfeiture, and we cannot deny their right to it. The regulation requiring the 14 days' notice of an intention to quit work is not an unreasonable one. Indeed, in large establishments like that of the defendant, where very great loss may be inflicted by a sudden and extensive strike of the men, such a rule seems to be an entirely proper and reasonable means of protection against wanton and ruthless injury inflicted in this manner." In a case decided by us not long ago, we said: "If this rule was known by the plaintiff when he hired his minor children to the defendant, it forms a part of his contract. It became an agreement that if the children left without notice he should not be entitled to receive their wages for the last two weeks." The present case is far stronger in its facts. Here the stipulation is inserted in the receipt for the wages paid, and is a part of the express contract of the parties under which the future employment continues. The judgment for the plaintiff must be reversed."

TELEGRAPH COMPANIES—NEGLIGENCE.

A. sent a telegram from Bangor, Me. to his correspondent at Philadelphia, as follows: "Will sell 800 M. laths, delivered at you wharf, two ten, net cash, July shipment. Answer quick," and the regular tariff rate was prepaid for transmission. The message was delivered with the word "ten" omitted, and this reply was sent: "Accept your telegraphic offer on laths. Cannot increase price spruce." The error was discovered by correspondence, but the purchase was insisted upon, and A. sued the company to recover his loss. The company, as for their defence,

relied upon the stipulation, in the common form used, that they should not be held liable unless the message was repeated at the cost of the sender, and on the trial they did not undertake to account for the omission of the word from the message. The question of liability in this case—Ayer vs. Western Union Telegraph Company—was reserved for the Supreme Judicial Court of Maine, where the plaintiff had judgment. Judge Emery, in the opinion, said: "1. The presumption is that the mistake resulted from the fault of the company. We cannot consider the possibility that it may have resulted from causes beyond the control of the company. In the absence of evidence on that point, we must assume that for such an error the company were in fault. 2. We think the stipulation as to non liability for an unrepeatable message is void. Telegraph companies are quasi-public servants. They receive from the public valuable franchises; they owe the public care and diligence; their business intimately concerns the public; many and various interests are practically dependent upon it; nearly all interests may be affected by it, and this negligence in it may often work irreparable mischief to individuals and communities. It is essential to the public good that their duty of using care and diligence be rigidly enforced. Having taken the pay and accepted the message, why should they not do all things, including the repetition of the dispatch, necessary for correct transmission? We think that, having undertaken to transmit this message, the defendant must deliver it as it was received."

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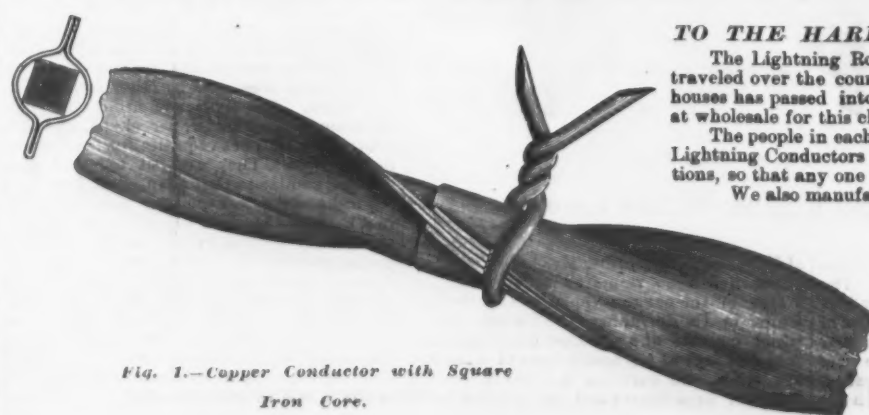


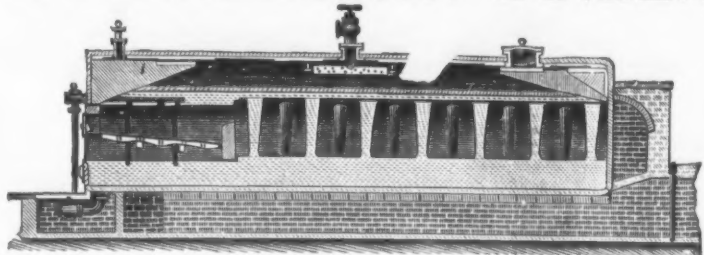
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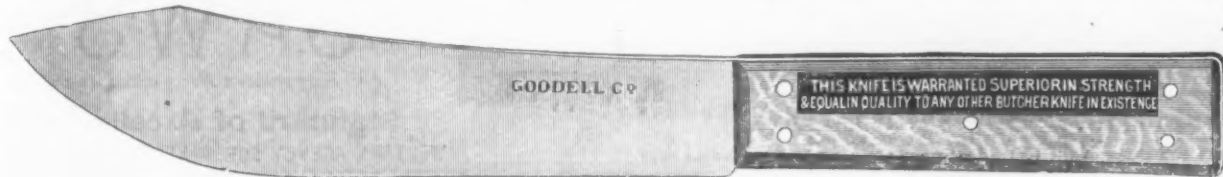


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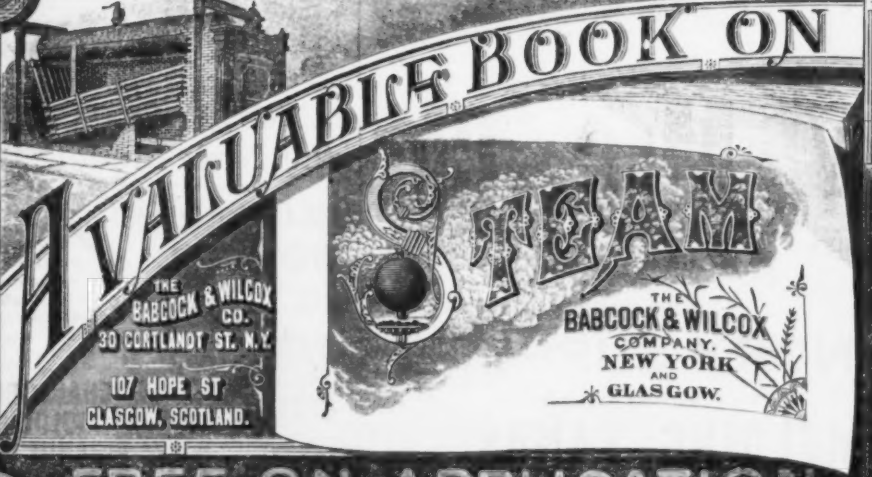
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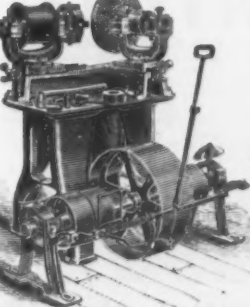
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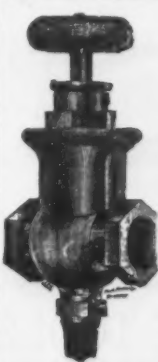
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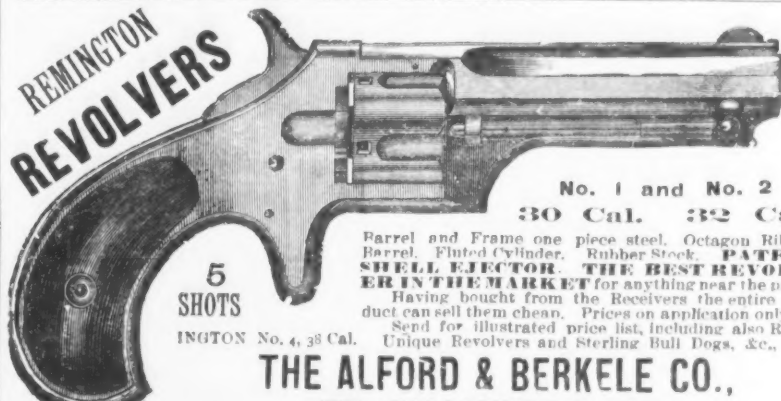
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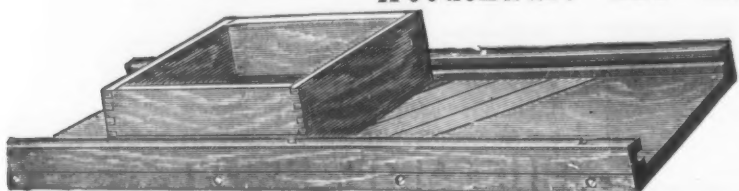
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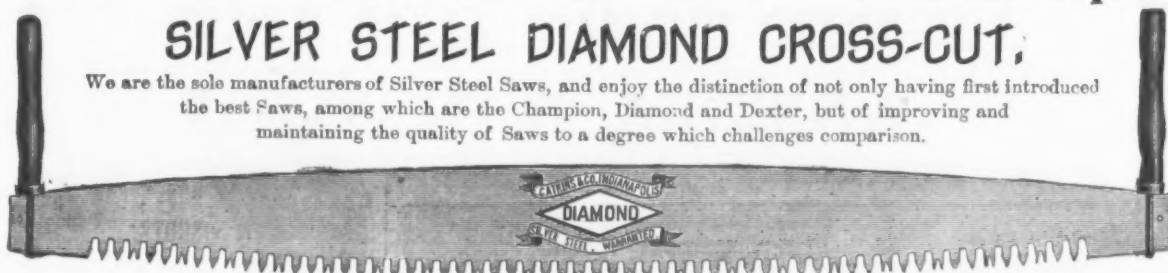
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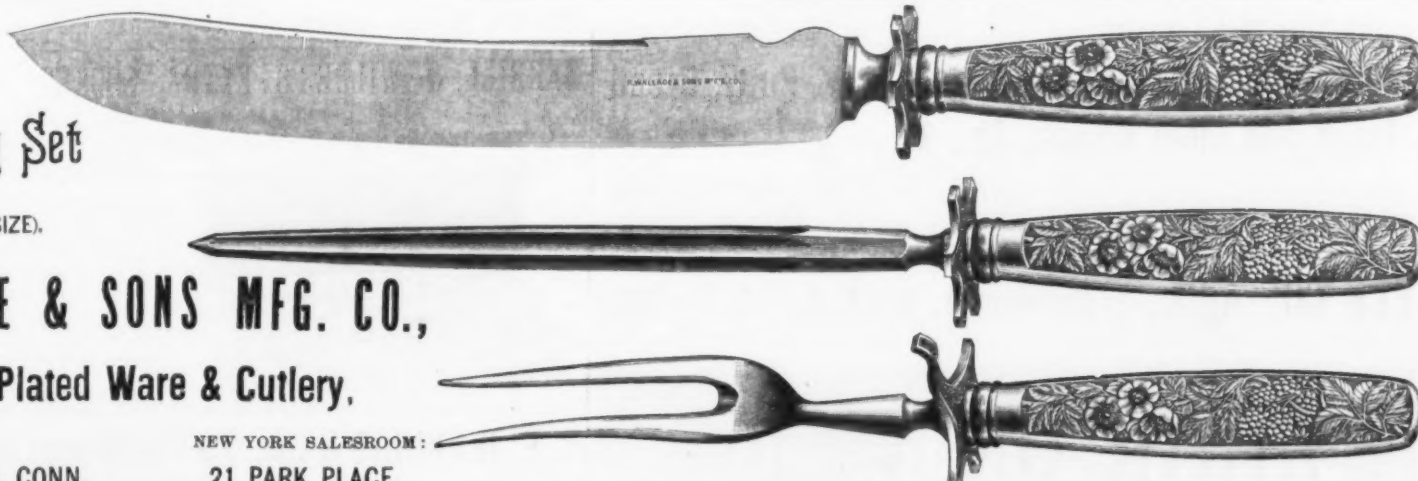
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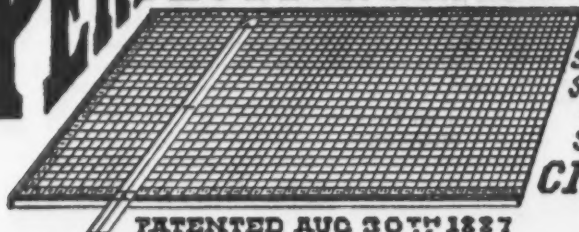


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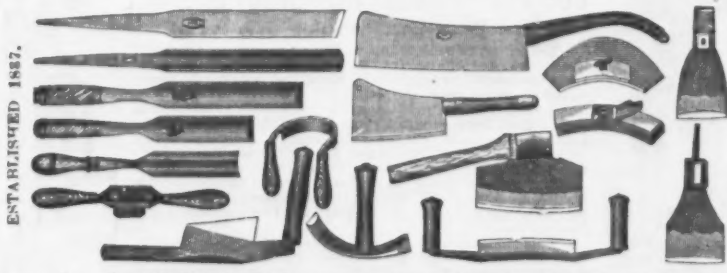
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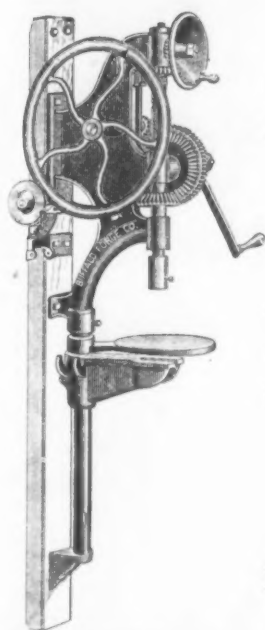
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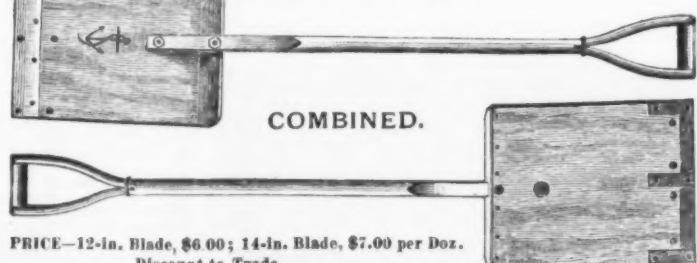
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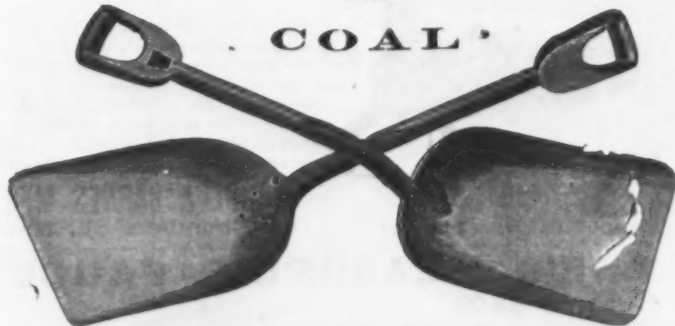
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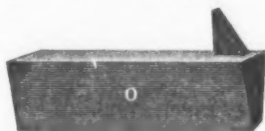
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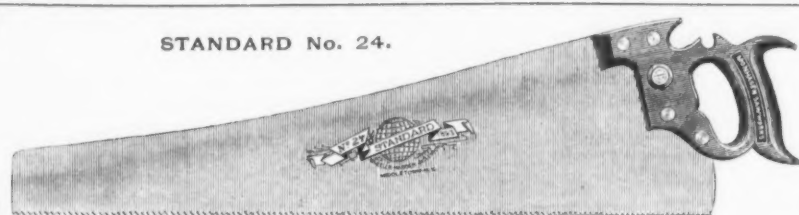
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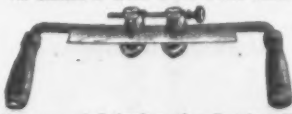
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With Adjusting Gauge to set it to the width
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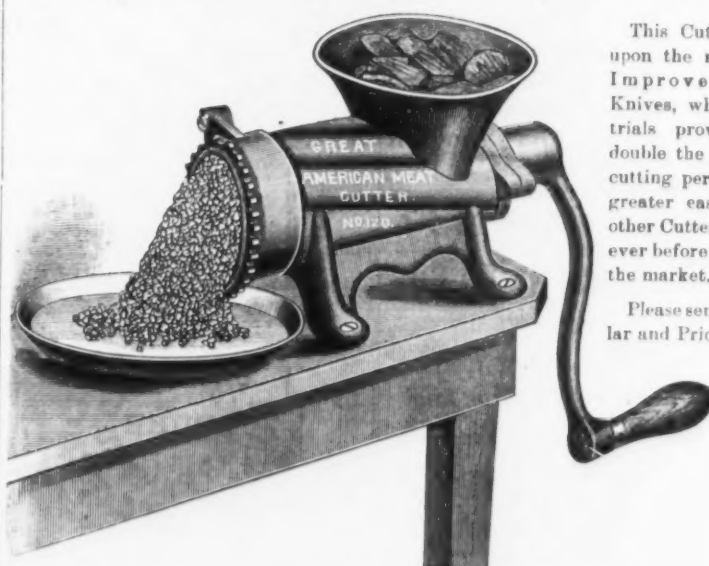
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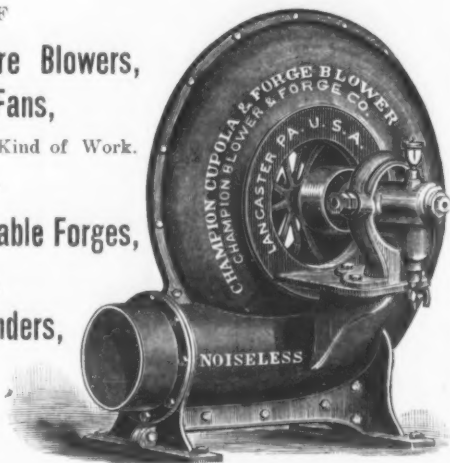
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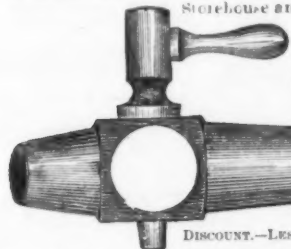
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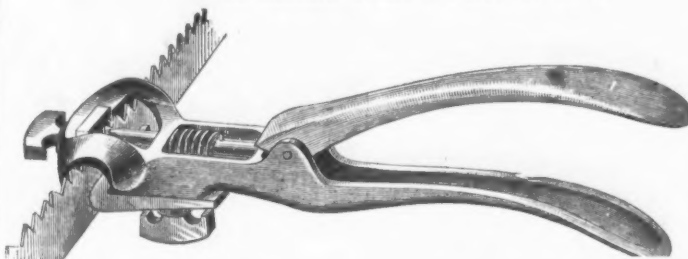
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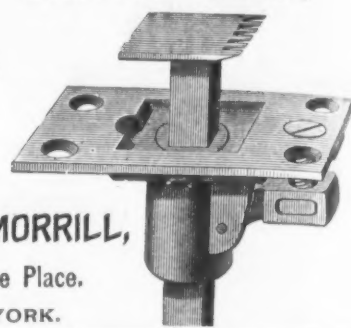
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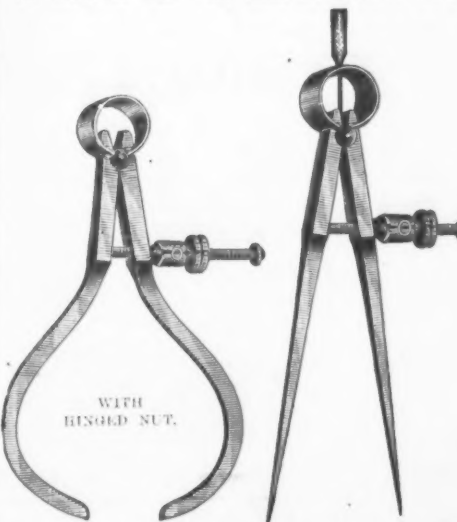


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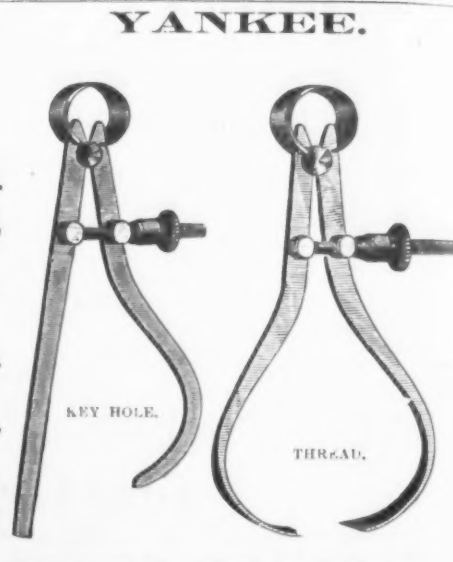
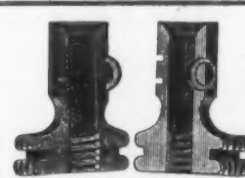


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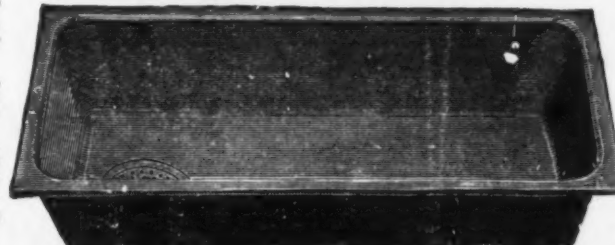
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These sinks, being made of
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A composition or filling for Tools, Machin-
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Is made of steel and is easily put in position. Catches and holds
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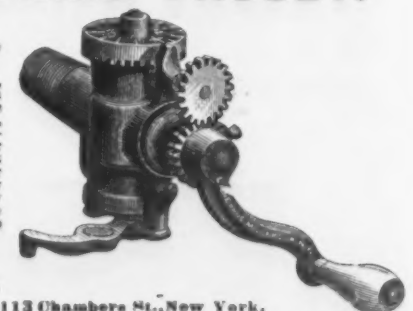
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Price, \$8.00.

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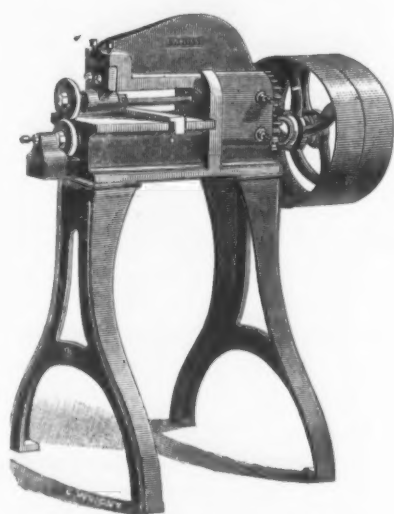
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6, 8 and 10 inch

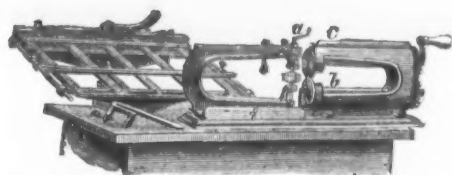
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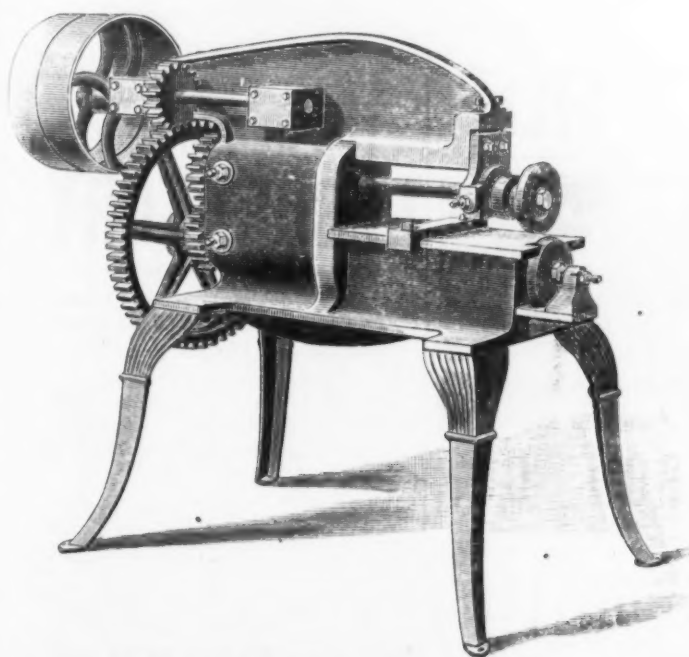


Slitting Shear No. 105.

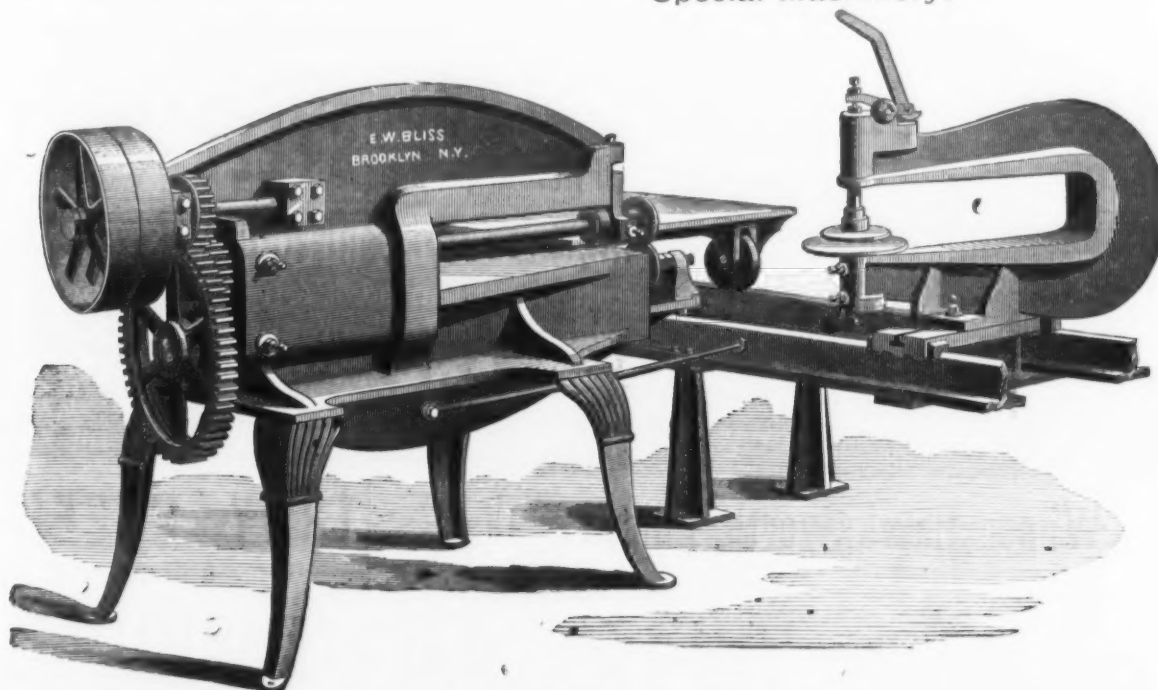


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Send for Circulars.



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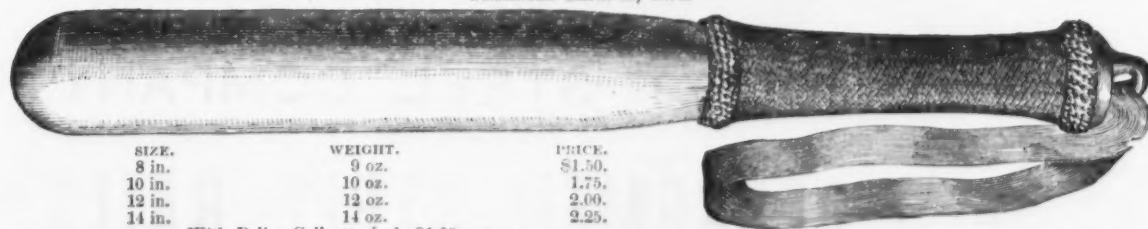
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WEIGHT, 4½ OZS. PRICE, \$1.25.



With Police Call attached, \$1.00 extra.
20,000 of these Clubs have been sold with an increasing demand.



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POLICE CALL.

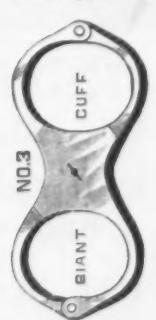
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SINGLE HAND-CUFF, WITH LOOP.

For Conveying a Prisoner aboard a railroad train.
Weight, 8 ozs. PRICE, \$3.50.

Patent applied for.



Giant Hand-Cuff.



GIANT HAND-CUFFS, AS THEY APPEAR ON THE WRISTS.

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ONE HUNDRED AND THIRTY-SIX YEARS,

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FREE FROM BLOW HOLES.

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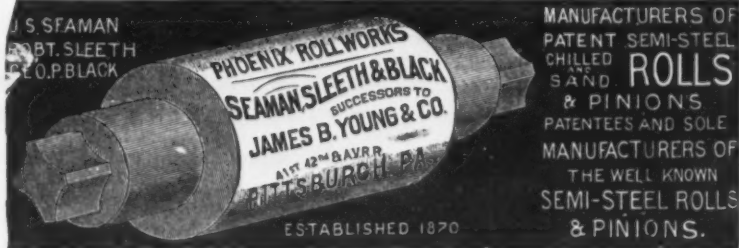
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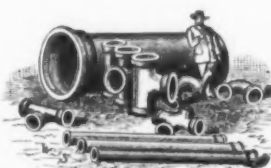
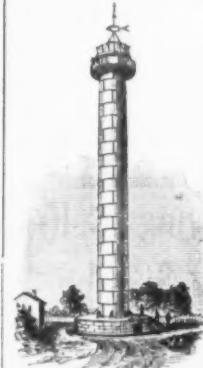
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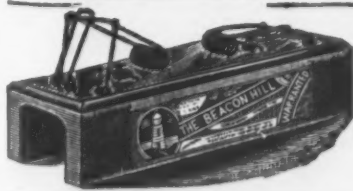
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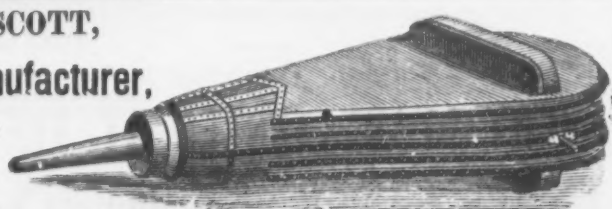


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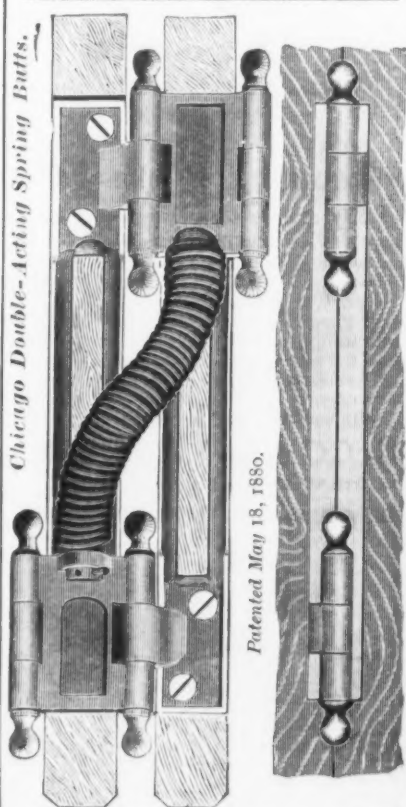
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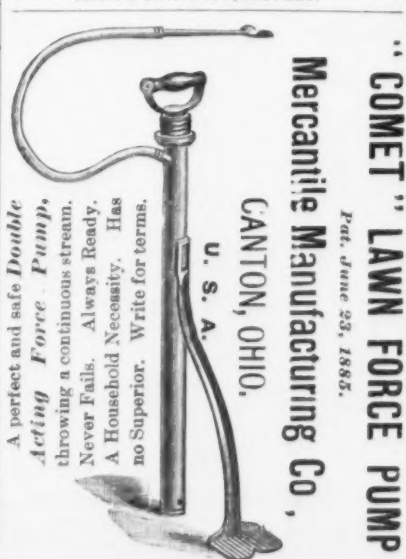


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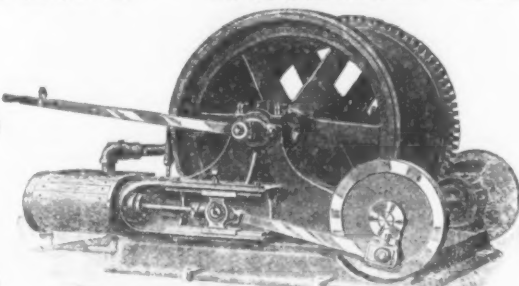
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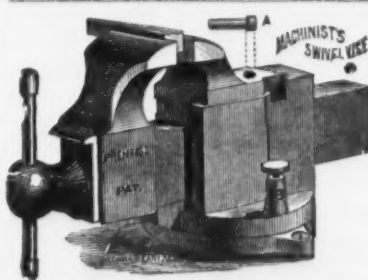
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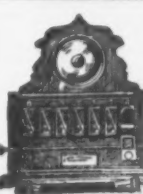


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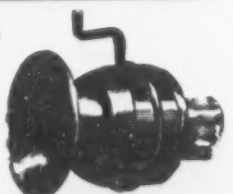
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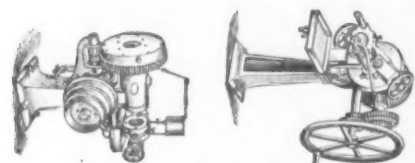
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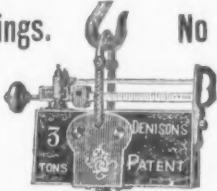
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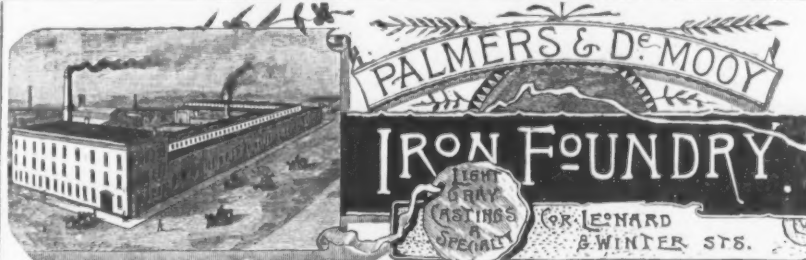
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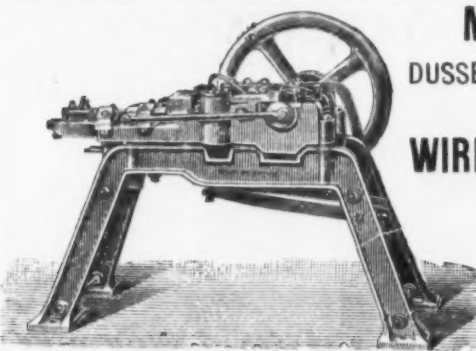
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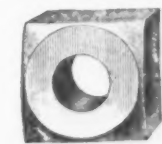
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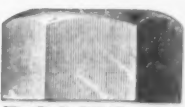
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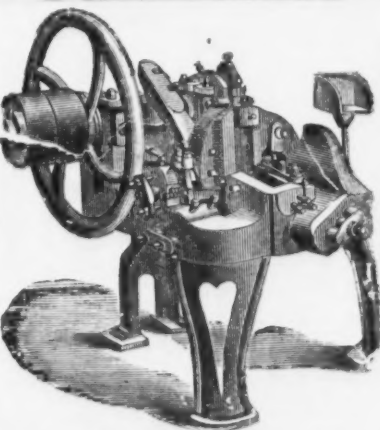
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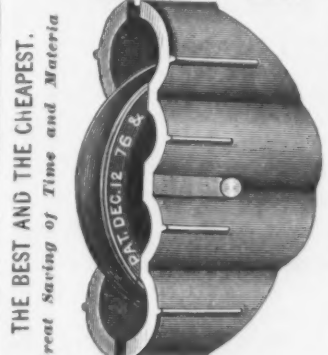


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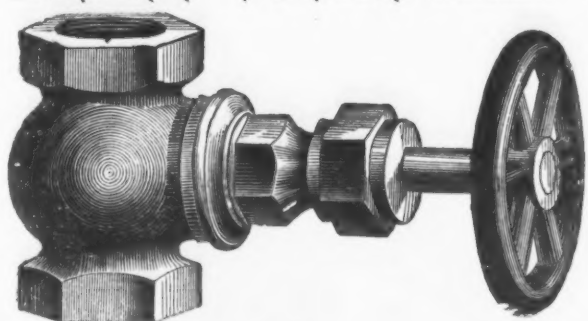
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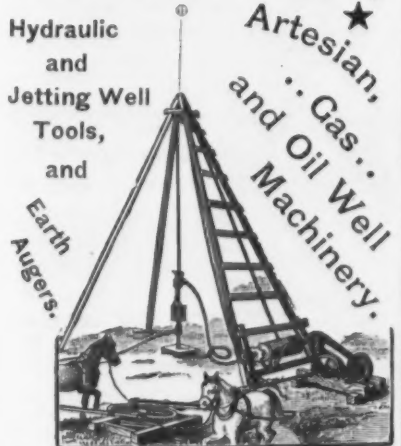


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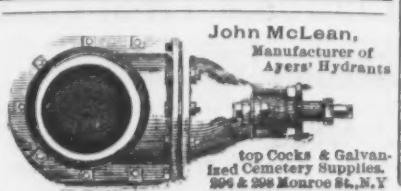


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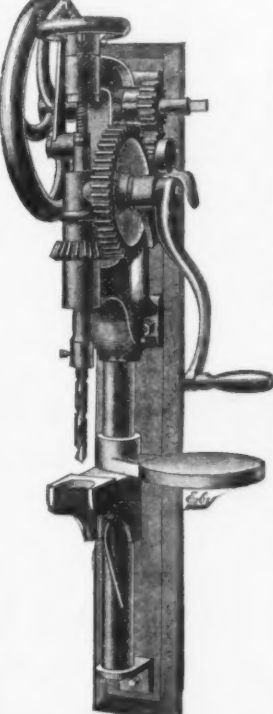
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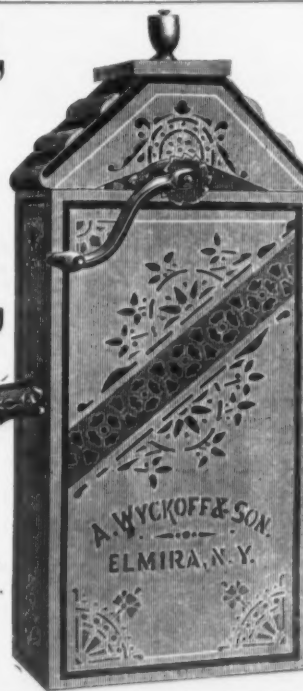
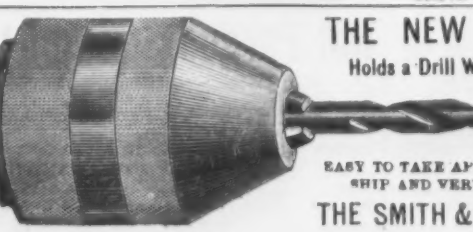
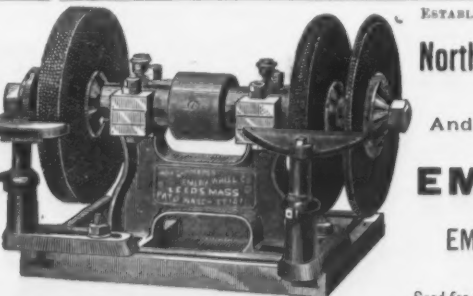
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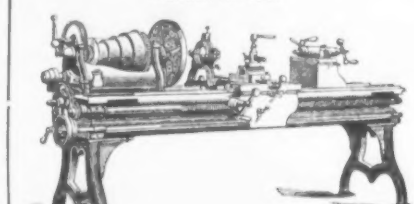
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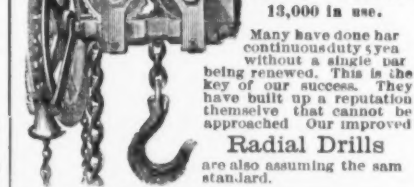


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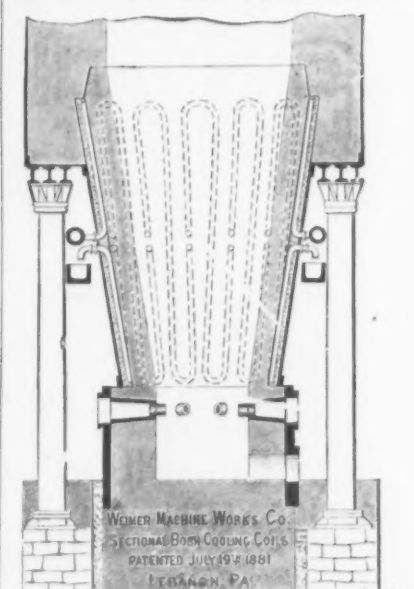
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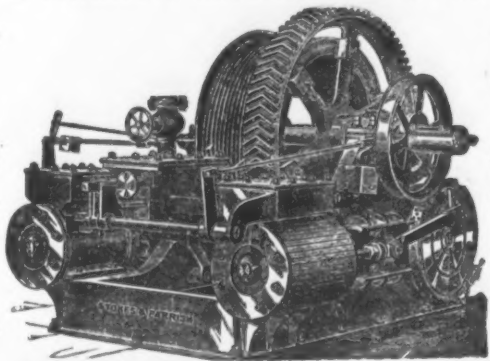


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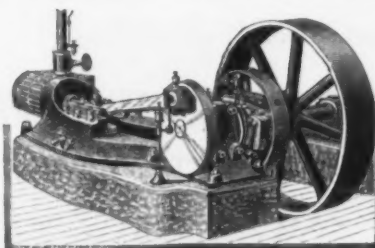
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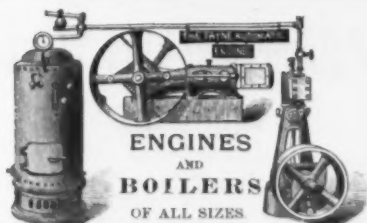
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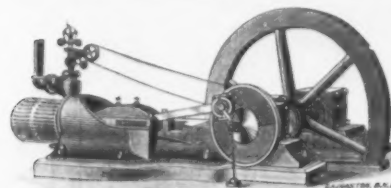
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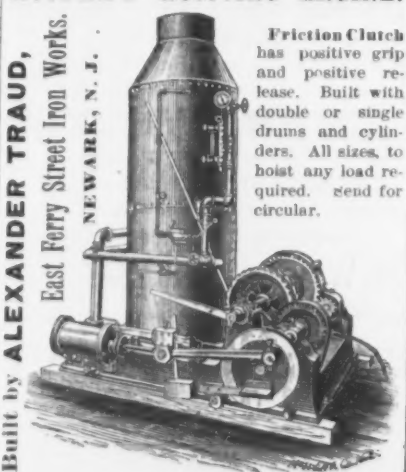
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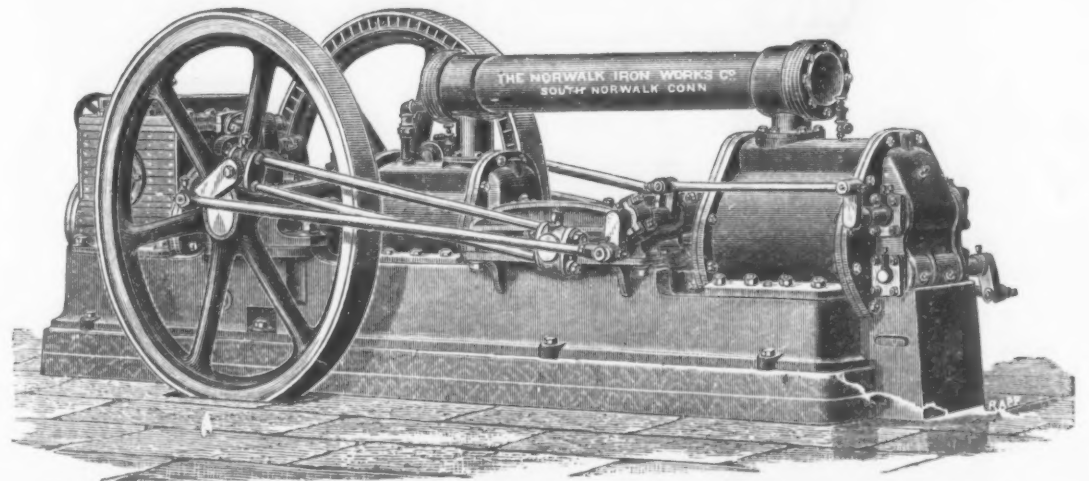
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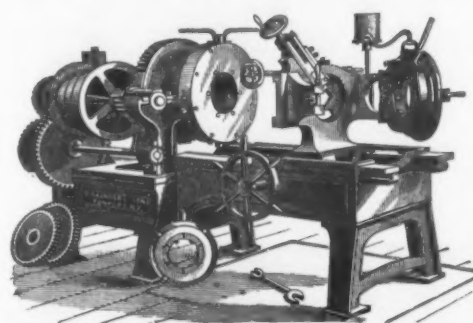
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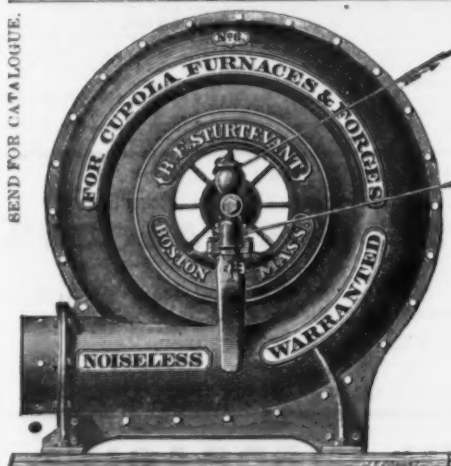
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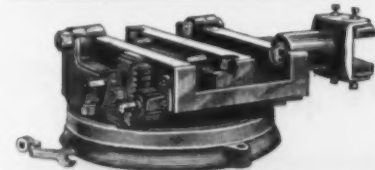
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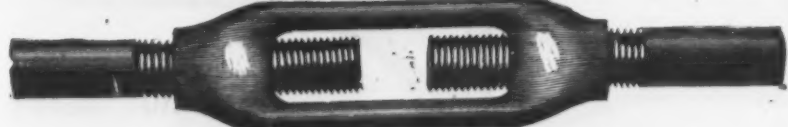
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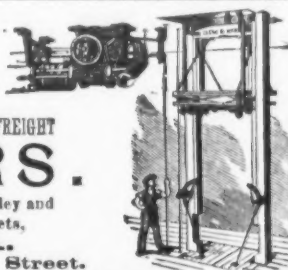
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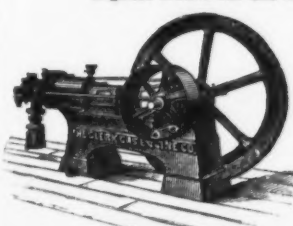
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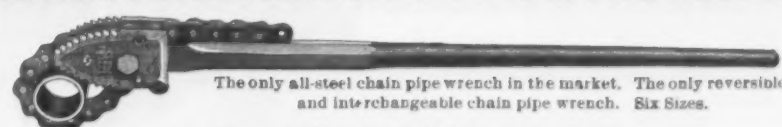
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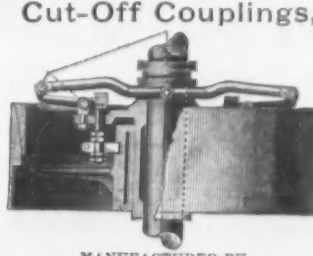
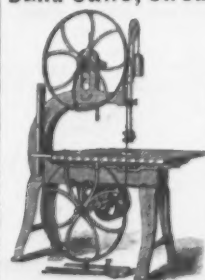
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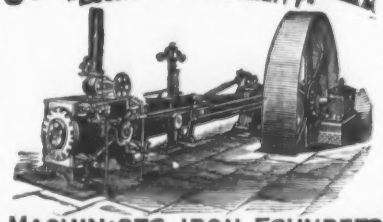
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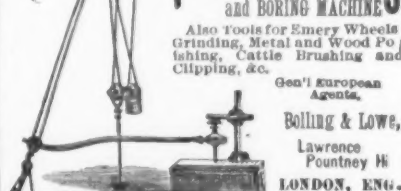


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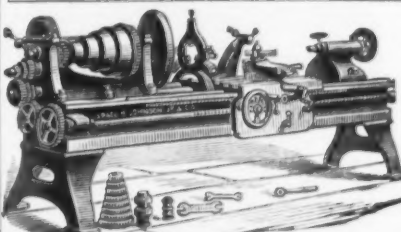
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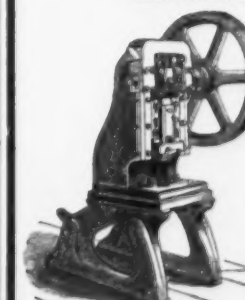
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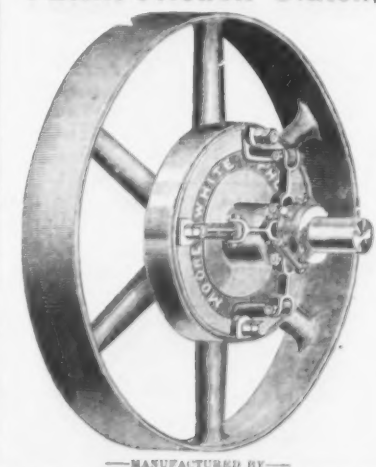
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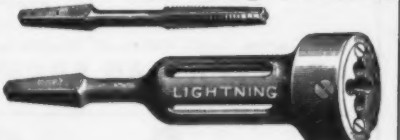
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